

Archives

A UNIVERSITY of
MARYLAND
PUBLICATION

Volume 9

August 5, 1956

Number 6

The MARYLAND & RARE BOOK ROOM
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COLLEGE PARK, MD.

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1956-1957

UNIVERSITY OF MARYLAND
COLLEGE PARK, MARYLAND



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IMPORTANT—The provisions of this publication are not to be regarded as an irrevocable contract between the student and the University of Maryland. The University reserves the right to change any provision or requirement at any time within the student's term of residence. The University further reserves the right at any time to ask a student to withdraw when it considers such action to be in the best interests of the University.

See Outside Back Cover for List of Separate Catalogs

Volume 9

August 5, 1956

Number 6

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BOARD OF REGENTS

AND

MARYLAND STATE BOARD OF AGRICULTURE

*Term
Expires*

WILLIAM P. COLE, JR., Chairman, 100 West University Parkway, Baltimore...	1958
MRS. JOHN L. WHITEHURST, Vice-Chairman, 4101 Greenway, Baltimore.....	1956
B. HERBERT BROWN, Secretary, 12 west Madison Street, Baltimore.....	1960
HARRY H. NUTTLE, Treasurer, Denton.....	1957
LOUIS L. KAPLAN, Assistant Secretary, 1201 Eutaw Place, Baltimore.....	1961
EDMUND S. BURKE, Assistant Treasurer, Cumberland.....	1959
EDWARD F. HOLTER, Middletown	1959
ENOS S. STOCKBRIDGE, 10 Light Street, Baltimore.....	1960
CHARLES P. McCORMICK, McCormick and Company, Baltimore.....	1957
C. EWING TUTTLE, 1114 St. Paul Street, Baltimore.....	1962
THOMAS B. SYMONS, 7410 Columbia Avenue, College Park.....	1963

Members of the Board are appointed by the Governor of the State for terms of nine years each, beginning the first Monday in June.

The President of the University of Maryland is, by law, Executive Officer of the Board.

The State law provides that the Board of Regents of the University of Maryland shall constitute the Maryland State Board of Agriculture.

A regular meeting of the Board is held the last Friday in each month, except during the months of July and August.

OFFICERS OF THE ADMINISTRATION

- WILSON H. ELKINS**, President, University of Maryland.
B.A., University of Texas, 1932; M.A., 1932; B.Litt., Oxford University, 1936
D.Phil., 1936.
- ALBIN O. KUHN**, Assistant to the President of the University.
B.S., University of Maryland, 1938; M.S., 1939; Ph.D., 1948.
- HARRY C. BYRD**, President Emeritus, University of Maryland.
B.S., University of Maryland, 1908; LL.D., Washington College, 1936; LL.D.,
Dickinson College, 1938; D.Sc., Western Maryland College, 1938.
- HAROLD F. COTTERMAN**, Dean of the Faculty of the University.
B.S., Ohio State University, 1916; M.A., Columbia University, 1917; Ph.D.,
American University, 1930.
- RONALD BAMFORD**, Dean of the Graduate School.
B.S., University of Connecticut, 1924; M.S., University of Vermont, 1926;
Ph.D., Columbia University, 1931.
- GORDON M. CAIRNS**, Dean of Agriculture.
B.S., Cornell University, 1936; M.S., 1938; Ph.D., 1940.
- PAUL E. NYSTROM**, Director, Agricultural Extension Service.
B.S., University of California, 1928; M.S., University of Maryland, 1931;
M.P.A., Harvard University, 1948; D.P.A., 1951.
- IRVIN C. HAUT**, Director, Agricultural Experiment Station and Head, Department
of Horticulture.
B.S., University of Idaho, 1928; M.S., State College of Washington, 1930;
Ph.D., University of Maryland, 1933.
- LEON P. SMITH**, Dean of the College of Arts and Sciences.
B.A., Emory University, 1919; M.A., University of Chicago, 1928; Ph.D.,
1930; Diplome le l'Institut de Touraine, 1932.
- J. FREEMAN PYLE**, Dean of the College of Business and Public Administration.
Ph.B., University of Chicago, 1917; M.A., 1918, Ph.D., 1925.
- MYRON S. AISENBERG**, Dean of the School of Dentistry.
D.D.S., University of Maryland, 1922.
- VERNON E. ANDERSON**, Dean of the College of Education.
B.S., University of Minnesota, 1930; M.A., 1936; Ph.D., University of Colorado,
1942.
- S. SIDNEY STEINBERG**, Dean of the College of Engineering.
B.E., Cooper Union School of Engineering, 1910; C.E., 1913; Registered
Professional Engineer.
- WILBERT J. HUFF**, Director, Engineering Experiment Station and Chairman of the
Division of Physical Sciences.
B.A., Ohio Northern University, 1911; B.A., Yale College, 1914; Ph.D., Yale
University, 1917; D.Sc. (hon.), Ohio Northern University, 1927.
- M. MARIE MOUNT**, Dean of the College of Home Economics.
B.A., University of Indiana, 1916; M.A., Columbia Teachers College, 1924
- ROGER HOWELL**, Dean of the School of Law.
B.A., Johns Hopkins University, 1914; Ph.D., 1917; LL.B., University of
Maryland, 1917.
- WILLIAM S. STONE**, Dean of the School of Medicine and Director of Medical Edu-
cation and Research.
B.S., University of Idaho, 1924; M.S., 1925; M.D., University of Louisville.
1929; Ph.D., (hon.), University of Louisville, 1946.
- FLORENCE M. GIFE**, Dean of the School of Nursing.
B.S., Catholic University of America, 1937; M.S., University of Pennsylvania,
1940; Ed.D., University of Maryland, 1952.
- CLIFFORD G. BLITCH**, Director of the University Hospital.
M.D., Vanderbilt University Medical School, 1928.
- JOSEPH R. AMBROSE**, Dean of the College of Military Science.
B.A., University of Denver, 1948; Colonel, U.S. Air Force.
- NOEL E. FOSS**, Dean of the School of Pharmacy.
Ph.C., South Dakota State College, 1929; B.S., 1929; M.S., University of
Maryland, 1932; Ph.D., 1933.

- LESTER M. FRALEY, Dean of the College of Physical Education, Recreation, and Health.
B.A., Randolph Macon College, 1928; M.A., 1937; Ph.D., Peabody College 1939.
- RAY W. EHRENSBERGER, Dean of the College of Special and Continuation Studies.
B.A., Wabash College, 1929; M.A., Butler University, 1930; Ph.D., Syracuse University, 1937.
- CHARLES E. WHITE, Chairman of the Lower Division.
B.S., University of Maryland, 1923; M.S., 1924; Ph.D., 1926.
- JOHN E. FABER, JR., Chairman of the Division of Biological Sciences.
B.S., University of Maryland, 1926; M.S., 1927; Ph.D., 1937.
- ADOLF E. ZUCKER, Chairman of the Division of Humanities.
B.A., University of Illinois, 1912; M.A., 1913; Ph.D., University of Pennsylvania, 1917.
- HAROLD C. HOFFSOMMER, Chairman of the Division of Social Sciences.
B.S., Northwestern University, 1921; M.A., 1923; Ph.D., Cornell University, 1929.
- GEARY F. EPPLEY, Director of Student Welfare and Dean of Men.
B.S., Maryland State College, 1920; M.S., University of Maryland, 1926.
- ADELE H. STAMP, Dean of Women.
B.A., Tulane University, 1921; M.A., University of Maryland, 1924.
- EDGAR F. LONG, Dean of Students.
B.A., Blue Ridge College, 1911; M.A., University of Kansas, 1914; Ph.D., Johns Hopkins University, 1932.
- G. WATSON ALGIRE, Director of Admissions and Registrations.
B.A., University of Maryland, 1930; M.S., 1931.
- NORMA J. AZLEIN, Associate Registrar.
B.A., University of Chicago, 1940.
- DOROTHY L. POWELL, Associate Director of Admissions.
B.A., University of Maryland, 1943.
- DAVID L. BRIGHAM, Alumni Secretary.
B.A., University of Maryland, 1938.
- WILLIAM W. COBEY, Director of Athletics.
A.B., University of Maryland, 1930.
- GEORGE O. WEBER, Director and Supervising Engineer, Department of Physical Plant.
B.S., University of Maryland, 1933.
- GEORGE W. MORRISON, Associate Director and Supervising Engineer Physical Plant. (Baltimore).
B.S., University of Maryland, 1927; E.E., 1931.
- CHARLES L. BENTON, Director of Finance and Business.
B.A., University of Maryland, 1938; M.S., 1940; C.P.A., 1940.
- C. WILBUR CISSEL, Comptroller.
B.A., University of Maryland, 1932; M.A., 1934; C.P.A., 1939.
- HOWARD ROVELSTAD, Director of Libraries.
B.A., University of Illinois, 1936; M.A., 1937; B.S.L.S., Columbia University, 1940.
- GEORGE W. FOGG, Director of Personnel.
B.A., University of Maryland, 1926; M.A., 1928.
- GEORGE W. WARREN, Director of Procurement.
B.A., Duke University, 1942.
- HARVEY L. MILLER, Director of Publications and Publicity.
Colonel, U.S. Marine Corps, Retired.
- HARRY A. BISHOP, Director of the Student Health Service.
M.D., University of Maryland, 1912.
- JOHN P. O'REAGAN, Commandant of Cadets, Air Force R.O.T.C.
B.S., Georgetown University 1950.

FACULTY COMMITTEES

General Committee on Educational Policy

Chairman; RUSSELL B. ALLEN, Professor of Civil Engineering

Committee on Admissions

Chairman; CHARLES MANNING, Associate Professor of English

Committee on Instructional Procedures

Chairman; R. LEE HORNBACE, Professor of Industrial Education

Committee on Scheduling and Registration

Chairman; CHARLES E. WHITE, Professor of Chemistry

Committee on Programs, Curricula and Courses

Chairman; PETER P. LEJINS, Professor of Sociology

Committee on Scholarships and Grants-in-Aid

Chairman; HAROLD F. COTTERMAN, Dean of the Faculty

Committee on Faculty Research

Chairman; JOHN S. TOLL, Professor of Physics

Committee on Public Functions and Commencements

Chairman; LEON P. SMITH, Dean, College of Arts and Sciences

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Chairman; LUCIUS GARVIN, Professor of Philosophy

Committee on University Publications

Chairman; CHARLES D. MURPHY, Professor of English

Committee on Student Life and Activities

Chairman; RUSSELL B. ALLEN, Professor of Civil Engineering

Committee on Student Publications and Communications

Chairman; JOHN H. FREDERICK, Professor of Business Organization

Committee on Student Discipline

Chairman; GEORGE W. WHARTON, Professor of Zoology

Religious Life Committee

Chairman; WESLEY M. GEWEHR, Professor of History

Committee on Student Health and Welfare

Chairman; BENJAMIN H. MASSEY, Professor of Physical Education

Committee on Student Employment and Self-Help

Chairman; STANLEY B. JACKSON, Professor of Mathematics

Committee on Intercollegiate Competition

Chairman; IRVIN C. HAUT, Director of the Agricultural Experiment Station

Committee on Professional Ethics, Academic Freedom and Tenure

Chairman; CARROLL E. COX, Professor of Plant Pathology

Committee on Appointments, Promotions and Salaries

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Committee on Faculty Life and Welfare

Chairman; HOMER ULRICH, Professor of Music

Committee on Membership and Representation

Chairman; RUSSELL R. RENO, Professor of Law

1956-57 CALENDAR

First Semester

1956

September 18-21
September 24
November 21
November 26
December 19

Tuesday-Friday
Monday
Wednesday after last class
Monday, 8 A. M.
Wednesday after last class

Registration, first semester
Instruction begins
Thanksgiving recess begins
Thanksgiving recess ends
Christmas recess begins

1957

January 2
January 20
January 21
January 22
January 23-30

Wednesday, 8 A. M.
Sunday
Monday
Tuesday
Wednesday-Wednesday, inc.

Christmas recess ends
Charter Day
Inauguration Day, holiday
Pre-Examination Study Day
First Semester examinations

Second Semester

February 5-8
February 11
February 22
March 25
April 18
April 23
May 16
May 29
May 30
May 31-June 7
June 2
June 8

Tuesday-Friday
Monday
Friday
Monday
Thursday after last class
Tuesday, 8 A. M.
Thursday
Wednesday
Thursday
Friday-Friday, inc.
Sunday
Saturday

Registration, second semester
Instruction begins
Washington's birthday, holiday
Maryland Day
Easter recess begins
Easter recess ends
Military Day
Pre-Examination Study Day
Memorial Day, holiday
Second Semester examinations
Baccalaureate exercises
Commencement exercises

Summer Session, 1957

June 24
June 25
August 2

Monday
Tuesday
Friday

Registration, summer session
Summer Session begins
Summer Session ends

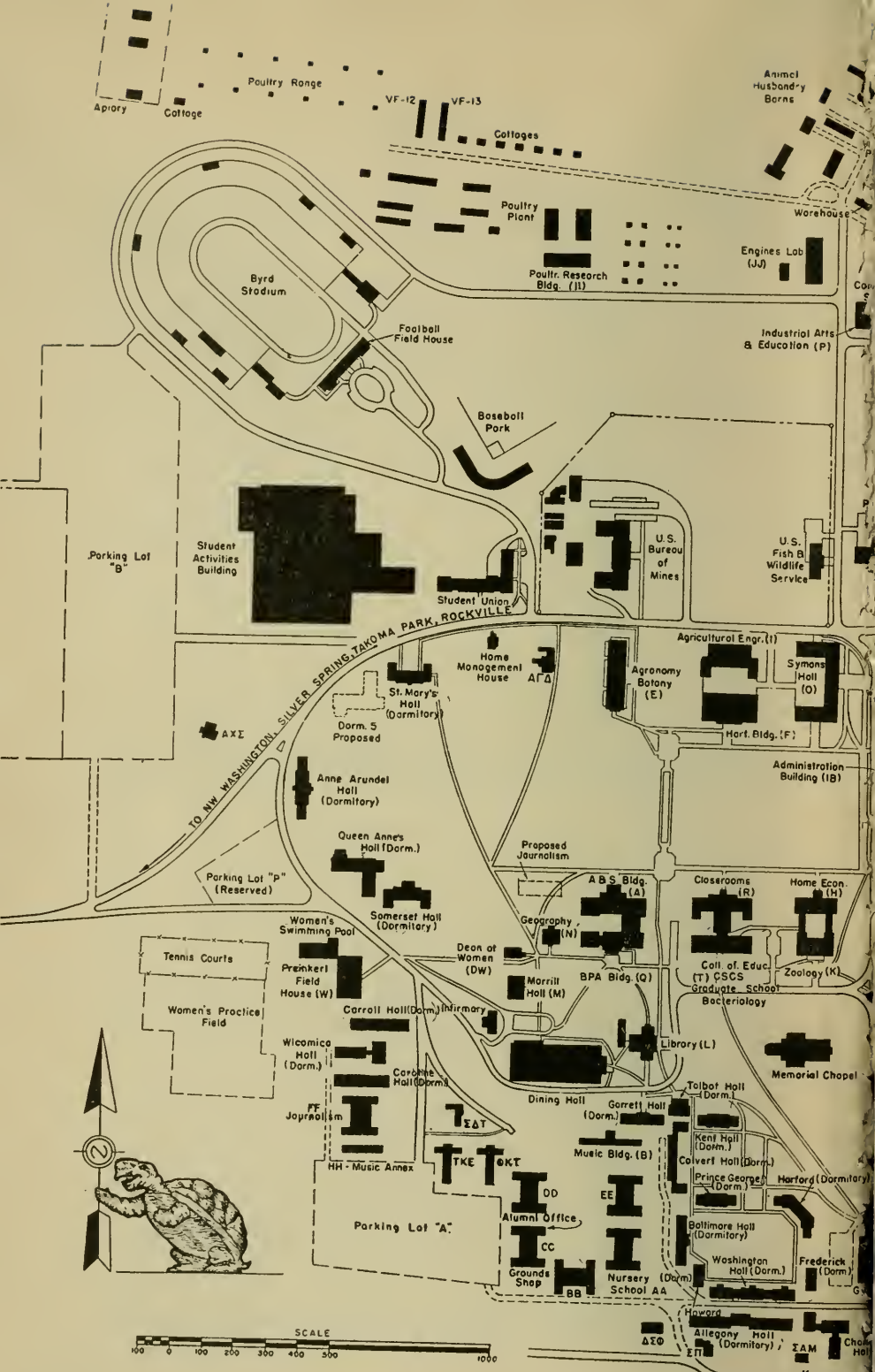
Short Courses

June 17-22
August 5-10
September 8-6

Monday-Saturday
Monday-Saturday
Tuesday-Friday

Rural Women's Short Course
4-H Club Week
Firemen's Short Course

1956	1957	1957	1958	1958
JULY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JANUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JULY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JANUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JULY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
OCTOBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	OCTOBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	OCTOBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	MAY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	MAY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



UNIVERSITY OF MARYLAND



COLLEGE PARK CAMPUS 1956-1957



BUILDING CODE LETTERS FOR CLASS SCHEDULES

A	Arts & Sciences - Francis Scott Key Hall
AA	Nursery School
AR	Army
B	Music
IB	Administration
C	Chemistry
Col	Coliseum
DD	Dairy - Turner Laboratory
D	Psychology Research
DW	Dean of Women
E	Agronomy - Botany - H. J. Patterson Hall
EE	Counseling Center
F	Horticulture - Holzpfel Hall
FF	Journalism
G	Ritchie Gymnasium
GG	Activities Building
H	Home Economics - Margaret Brent Hall
I	Agricultural Engr. - Shriver Laboratory
J	Engr. Classroom Bldg.
K	Zoology - Silvester Hall
L	Library - Shoemaker Building
M	Morrill Hall
N	Geography
O	Agriculture - Symons Hall
P	Industrial Arts & Education - J. M. Patterson Bldg.
Q	Business & Public Administration - Talloferro Hall
R	Classroom Building - Woods Hall
S	Engr. Laboratories
T	Education - Skinner Building
U	Chem. Engr.
V	Wind Tunnel
W	Preinkert Field House
X	Judging Pavilion
Y	Mathematics
Z	Physics
II	Poultry - Jull Hall
JJ	Engines Research Lab. (Molecular Physics)

Sororities Not Shown

- Phi Sigma Sigma
- Alpha Chi Omega
- Alpha Xi Delta

Fraternities Not Shown

- Alpha Epsilon Pi
- Zeta Beta Tau
- Phi Kappa Gamma
- Tau Epsilon Phi

UNIVERSITY OF MARYLAND

GENERAL INFORMATION

THE University of Maryland, in addition to being a State University, is the Land-Grant institution of Maryland. The University is co-educational in all of its branches.

College Park

The undergraduate Colleges and the Graduate School of the University of Maryland are located at College Park, Prince George's County, Maryland, on a beautiful tract of rolling, wooded land, less than eight miles from the heart of the Nation's capital, Washington, D. C. This nearness to Washington is of immeasurable advantage to students because of the unusual library facilities afforded by the Library of Congress and the libraries of United States Governmental Departments. Students also have the privilege of observing at close range sessions of the United States Supreme Court, the United States Senate and the House of Representatives and the opportunity of readily obtaining an abundance of factual data which is constantly being assembled by the numerous agencies of the Federal Government.

The University is served by excellent transportation facilities, including the main line of the Baltimore and Ohio Railroad and the Washington transportation system. The campus fronts on the Baltimore-Washington Boulevard, a section of U. S. Route No. 1, at the intersection of Maryland Route 193 and is thus easily accessible by private travel.

College Park and several adjacent residential communities provide homes for many of the members of the faculty and staff. Living accommodations at reasonable rates are available for students who live off campus.

Baltimore

The professional schools of the University, Dentistry, Law, Medicine, Nursing, and Pharmacy; the University Hospital; the Psychiatric Institute; and the Baltimore Program of the College of Special and Continuation Studies are located in a group of splendid buildings, most of them erected in recent years, at or near the adjacent corners of Lombard, Greene and Redwood Streets, Baltimore, Maryland.

Baltimore, a thriving, modern industrial city of more than a million inhabitants, has an old, established culture represented by outstanding educational institutions, libraries, museums, parks, public buildings, and places of historical interest.

Baltimore is proud of its well earned reputation as a center of the highest type of professional education, and no finer location could be chosen by a young man or woman desiring to prepare for a professional career.

BRIEF HISTORY OF THE UNIVERSITY

While its advancement in recent years, both in the matter of physical plant facilities and educational standards, has been especially rapid, the University has behind it a long and honorable record.

The history of the present University is the history of two institutions: the old privately-owned and operated University of Maryland in Baltimore, and the Maryland State College (formerly Maryland Agricultural College) at College Park. These institutions were merged in 1920 to form the present University of Maryland.

In 1807 the College of Medicine of Maryland was organized, the fifth medical school in the United States. The first class was graduated in 1810. A permanent home was established in 1814-1815 by the erection of the building at Lombard and Greene Streets in Baltimore. This is the oldest structure in America devoted to medical teaching. Here was founded one of the first medical libraries (and the first medical school library) in the United States. In 1812 the General Assembly of Maryland authorized the College of Medicine of Maryland to "annex or constitute faculties of divinity, law, and arts and sciences," and by the same act declared that the "college or faculties thus united should be constituted a university by the name and under the title of the University of Maryland." By authority of this act, steps were taken in 1813 to establish "a faculty of law," and in 1823 a regular school of instruction in law was opened. Subsequently there were added in 1882 a Department of Dentistry, which was absorbed in 1923 by the Baltimore College of Dental Surgery (founded in 1840, the first dental school in the world); in 1889 a School of Nursing; and in 1904 the Maryland College of Pharmacy (founded in 1841, the third oldest pharmacy college in the United States).

The Maryland State College was chartered in 1856 under the name of the Maryland Agricultural College, the second agricultural college in the Western Hemisphere. For three years the College was under private management. In 1862 the Congress of the United States passed the Land Grant Act. This act granted each state and territory that should claim its benefits a proportionate amount of unclaimed western lands, in place of scrip, the proceeds from the sale of which should be applied under certain conditions to the "endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanical arts, in such a manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This grant was accepted by the General Assembly of Maryland, and the Maryland Agricultural College was named as the beneficiary of the grant. Thus the College became, at least in part, a State institution. In the fall of 1914 control was taken over entirely by the State. In 1916 the General Assembly granted a new charter to the College and made it the Maryland State College.

In 1920, by an act of the State Legislature, the University of Maryland was merged with the Maryland State College, and the resultant institution was given the name University of Maryland.

OBJECTIVES OF THE UNIVERSITY

Briefly summarized, the major objectives of the University of Maryland are (1) to prepare students in the arts, the humanities, the pure and applied sciences, agriculture, business and public administration, home economics, industry, and for the professions; (2) to contribute to the civic, ethical, moral, cultural, spiritual and general welfare; (3) to provide general education in its broadest sense, both formal and informal, for all students who enroll; (4) to develop those ideals and finer relationships among students which characterize cultured individuals; (5) to conduct systematic research and promote creative scholarship; and (6) to offer special, continuation and extension education in communities where feasible.

ADMINISTRATIVE ORGANIZATION OF THE UNIVERSITY

The government of the University is, by law, vested in a Board of Regents, consisting of eleven members appointed by the Governor of Maryland, each for a term of nine years. The administration of the University is vested in the President. The Deans of the Colleges and Schools constitute a committee which serves in an advisory capacity to the President.

Following is a list of the administrative divisions of the University.

At College Park

College of Agriculture	College of Special and Continuation Studies
College of Arts and Sciences	
College of Business and Public Administration	Graduate School
College of Education	Summer School
College of Engineering, The Glenn L. Martin Institute of Technology	
College of Home Economics	Agricultural Experiment Station
College of Military Science	Agricultural and Home Economics Extension Service
College of Physical Education, Recreation and Health	Agricultural Services and Controls

At Baltimore

School of Dentistry	School of Nursing
School of Law	School of Pharmacy
School of Medicine	University Hospital

State-Wide Activities

The Agricultural and Home Economics Extension Service maintains local representatives in every county of the State. These representatives, County Agents and Home Demonstration Agents, provide expert assistance to farmers and farm families in their areas and, when necessary, call upon the large staff of specialists at the headquarters of the Extension Service at College Park.

The Live Stock Sanitary Service, which is charged with responsibility for the control and eradication of diseases of livestock and poultry, maintains local veterinary inspectors throughout the State, in addition to specialists and laboratory technicians at the main laboratory at College Park and the branch laboratories in Salisbury, Centerville and Baltimore.

PHYSICAL FACILITIES—GROUNDS, BUILDINGS, AND EQUIPMENT

College Park

The University owns approximately 2500 acres of land, of which 1115 are at College Park. The main campus, occupying about 300 acres, consists of a tract of rolling land surmounted by a commanding hill. Many of the buildings are located on or near this eminence. The grounds are attractively landscaped with trees and shrubbery. An additional 800 acres at College Park are devoted to research and teaching in horticulture, agronomy, entomology, dairying, livestock, agriculture, and poultry. In addition, there are five large areas in different parts of the State, totaling 1385 acres, which are used for agricultural research.

The buildings have been consistently designed in a Georgian colonial style. There are seventy-five permanent principal buildings and an additional seventy for supplemental utility. Many of the permanent buildings were named in 1954, through action of the Board of Regents and with appropriate ceremonies to honor individuals who have contributed in some way to the growth of the institution. The total evaluation of buildings and equipment at College Park is in excess of fifty million dollars. (See map on pages 4 and 5 for location of buildings.)

In addition, two United States Government buildings are located on the campus. The Eastern Experiment Station of the United States Bureau of Mines has general laboratories which cooperate with the University in certain phases of advanced instruction. The Technological Research Laboratory of the United States Fish and Wildlife Service contains laboratories for research in fisheries dealing with chemical, chemical engineering, bacteriological, nutritional, and biological subjects. Under certain conditions graduate students may use the facilities of these laboratories.

Baltimore

The group of buildings located in the vicinity of Lombard and Greene Streets provides facilities for the Baltimore Division of the University, embracing the professional Schools and Hospital. The group is comprised of the original Medical School Building, erected in 1812; the Out-Patient Department, formerly University Hospital; the new University Hospital, with approximately 450 beds; the Psychiatric Institute, an addition to University Hospital providing 200 additional general hospital beds and 90 beds for psychiatric cases; the Frank C. Bressler Building, for medical research; the Dental-Pharmacy Building, with dental clinics; the Nurses' Residence; the Law Building; Davidge Hall, the Medical Library; Gray Laboratory, housing medical laboratories and general offices; and the Administration Building. The Kelly Memorial, adjacent to University Hospital, is used jointly by the University and the Pharmaceutical Association.

LIBRARY FACILITIES

Libraries are located at both the College Park and Baltimore divisions of the University. They house in the aggregate over 300,000 bound and fully cataloged volumes, and they receive over 3500 periodicals.

The University is now in the process of constructing at College Park a library that will house one million volumes, with reading rooms that will accommodate two thousand students. At the present time the collections on the campus are shelved in the General Library, the Chemistry, Engineering and Physical Sciences, Entomology, and Home Economics Libraries, as well as in other units.

Plans are in preparation for a new Medical Science Library in Baltimore. Facilities here consist of the Libraries of the Schools of Dentistry and Pharmacy, containing 27,000 volumes; the School of Law, 30,000 volumes; the School of Medicine, 37,000 volumes; and the School of Nursing, 3200 volumes. The Medical Library is housed in Davidge Hall; the remaining three libraries have quarters in the buildings of their respective schools. Facilities for the courses in Arts and Sciences are offered jointly by the Libraries of the Schools of Dentistry and Pharmacy.

The University library system is able to supplement its reference service to graduate students and faculty by borrowing material through Inter-Library Loan. Within a short distance from College Park are located the excellent facilities of the Library of Congress, the Department of Agriculture, the Department of Education, and other agencies of the Federal Government.

ADMISSION PROCEDURE

Undergraduate Schools: Applicants for admission to the Colleges of Agriculture; Arts and Sciences; Business and Public Administration; Education; Engineering; Home Economics; Military Science; Physical Education; Recreation and Health; and the School of Nursing should communicate with the Director of Admissions, University of Maryland, College Park, Maryland.

Graduate School: Those seeking admission to the Graduate School should address the Dean of the Graduate School, University of Maryland, College Park.

Professional Schools: Information about admission to the professional schools in Baltimore may be had by writing to the Dean of the college concerned or to the Director of Admissions of the University.

Time of Admission: New students should plan to enter the University at the beginning of the fall semester if possible. Students, however, will be admitted at the beginning of either semester.

Applicants from Secondary Schools: Graduates of secondary schools should procure an application blank from the Director of Admissions. The personal data here requested should be supplied, and the principal or headmaster of the candidate's secondary school should enter the student's record and mail the blank to the Director of Admissions.

To avoid delay, it is suggested that applications be filed not later than July 1st for the fall semester, and January 1st for the spring semester. Applications from students completing their last semester of secondary work are encouraged. If acceptable, supplementary records may be sent upon graduation.

Applicants from Other Colleges and Universities: Candidates seeking admission from other colleges and universities should secure an application blank from the Director of Admissions. They should supply the personal data here requested and ask their secondary school principals or headmasters to enter their secondary school records and forward the blank to the Director of Admissions; next, they should request the Registrar of the college or university which they have attended to send a transcript of their grades to the Director of Admissions at College Park.

Readmission: Students in good standing, not in attendance at the University for a semester or longer, must apply to the Director of Admissions for readmission.

REQUIREMENTS FOR ADMISSION

Admission by Certificate: Graduates of accredited secondary schools of Maryland will be admitted by certificate upon the recommendation of the principal. Graduates of out-of-state schools should have attained college certification marks, such marks to be not less than one letter or ten points higher than the passing mark.

SUBJECT REQUIREMENTS

In selecting students more emphasis will be placed upon good marks and other indications of probable success in college rather than upon a fixed pattern of subject matter.

English 4 units required for all divisions of the University.

Mathematics $3\frac{1}{2}$ units, including Solid Geometry, required for Engineering and Mathematics majors.

For all Colleges, one unit of Algebra and one of Plane Geometry are desirable. A unit of Algebra will be needed by Business and Public Administration students and by most Education, Home Economics, and Arts students.

Social Science; Natural and Biological Science. 1 unit from each group is required; two are desirable.

Foreign Languages.... Those who will follow the professions, enter journalism, foreign trade or service, study the humanities, or do research work should have a good foundation in one or more foreign languages, but none is required.

Electives Fine Arts, trade, and vocational subjects are acceptable.

Transfer Students: Only students in good standing as to scholarship and conduct are eligible to transfer. Advanced standing is assigned to transfer students from accredited institutions under the following conditions:

1. A minimum of one year of resident work or not less than 30 semester hours is necessary for a degree.
2. The University reserves the right at any time to revoke advanced standing if the transfer student's progress is unsatisfactory.

Special Students: Applicants who are at least twenty-one years of age and who have not completed the usual preparatory course may be admitted to such courses as they seem fitted to take. Special students are ineligible to matriculate for a degree until entrance requirements have been satisfied.

Unclassified Students: Applicants who meet entrance requirements but who do not wish to pursue a program of study leading to a degree are eligible for admission to courses for which they have met prerequisites.

GENERAL EDUCATIONAL REQUIREMENTS FOR ALL UNDERGRADUATE STUDENTS

THE PROGRAM IN AMERICAN CIVILIZATION

Because the University feels that it is vital for every student to understand this country better, it has established a comprehensive program of American studies. Work in American Civilization is offered at three distinct academic levels. The first level is required of all freshmen or sophomores at the University and is described below.

The second level is for undergraduate students wishing to carry a major in this field (see catalog for the College of Arts and Sciences). The third level is for students desiring to do graduate work in this field (see Catalog for the Graduate School).

All students (unless specific exceptions are noted in printed curricula) are required to take twelve semester hours of English (for sequence and descriptions, see the offerings of the Department of English), three semester hours of sociology (Soc. 1—Sociology of American Life), three semester hours of government (G. & P. 1—American Government) and six semester hours of history (Hist. 5-6—History of American Civilization) before graduation.

PHYSICAL EDUCATION REQUIREMENTS FOR MEN AND WOMEN

All undergraduate men and women students classified academically as freshmen or sophomores who are registered for more than six semester hours of credit are required to enroll in and successfully complete four prescribed courses in physical education for a total of four semester hours of credit. These courses must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Men and women who have reached their thirtieth birthday are exempt from these courses. Students who are physically disqualified from taking these courses must enroll in adaptive

courses, for which credit will be given. Transfer students who do not have credit in these courses or their equivalent must complete them or take them until graduation, whichever occurs first. Students with military service may receive credit for these courses by applying to the Air Force R.O.T.C. Records Office.

Required Uniform. A regulation uniform as prescribed by the College of Physical Education, Recreation, and Health is required for both men and women.

Required Equipment. Students will be required to provide individual equipment for certain elective courses such as archery, badminton, golf, and tennis.

REQUIREMENTS IN MILITARY INSTRUCTION

All male students unless specifically exempted under University rules are required to take elementary military training for a period of two years. This training includes two hours of regularly scheduled drill per week at 11:00 o'clock on Tuesdays and Thursdays and other drill formations at such times as designated by the Professor of Air Science (PAS). The successful completion of this course is a prerequisite for graduation, but it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

Any male student who has not reached his twenty-fifth birthday at the time of initial enrollment in any undergraduate or graduate curriculum of this University may apply for advanced training in the Air Force Reserve Officers' Training Corps (A.F.R.O.T.C.) upon satisfaction of the basic requirements. Successful completion of the advanced A.F.R.O.T.C. course and a baccalaureate degree will lead to a commission in the United States Air Force Reserve or a Certificate of Completion, as applicable. Advanced A.F.R.O.T.C. training may be carried as an integral part of the student's academic program.

BASIC EXEMPTION FROM MILITARY INSTRUCTION

1. Students who have completed the basic course in other approved units of the United States Air Force, Army, or Naval R. O. T. C. will receive credit.

2. Students holding commissions in the Reserve Corps of the Army, Navy, Marine Corps, Coast Guard, or Air Force will receive credit.

3. Students who have served in the Army, Navy, Marine Corps, Coast Guard, or Air Force for a period of time long enough to be considered equivalent to the training received in the A. F. R. O. T. C. program will receive credit. Short periods of service in any of the branches named above will be evaluated and allowed as credit toward completion of the course.

4. Graduate students will be exempt.

5. Students classified as "special students" who are registered for less than seven semester hours will be exempt.

6. Students who have passed their thirtieth birthday before starting the course will be exempt from any part of the course not already completed.

7. Students who are not citizens of the United States or one of its territorial possessions will be exempt. Students having applied for United States citizenship will not be exempt.

CURRICULA AND PROGRAMS

AT COLLEGE PARK

College of Agriculture. The College of Agriculture provides training leading to the degree of Bachelor of Science. Curricula are offered in Agricultural Chemistry, Agricultural Economics and Marketing, Agricultural Education and Rural Life, Agriculture-Engineering, Agnomy (crops and soils), Animal Husbandry, Botany (plant cytology, morphology and taxonomy; plant pathology; and plant physiology and ecology), Dairying (dairy husbandry and dairy products technology), Entomology, General Agriculture, Horticulture (pomology and olericulture, floriculture and ornamental horticulture and commercial processing of horticultural crops), and Poultry Husbandry.

College of Arts and Sciences. The College of Arts and Sciences provides liberal training leading to the degrees of Bachelor of Arts and Bachelor of Science. Curricula are offered in American Civilization, Art, Bacteriology, Chemistry, Classical Languages (Greek and Latin), Crime Control, English, Fisheries, Foreign Languages (French, German, Hebrew, Russian, and Spanish), General Biological Sciences, General Physical Sciences, History, Mathematics, Music, Philosophy, Physics, Pre-Dentistry, Pre-Law, Pre-Medicine, Psychology, Social Service, Sociology, Speech, and Zoology.

The College of Arts and Sciences offers combined degrees with the Schools of Dentistry, Medicine, and Law.

College of Business and Public Administration. The College of Business and Public Administration offers curricula leading to a Bachelor of Science degree in Business Organization and Administration, Economics, Geography, Government and Politics, Journalism, Office Techniques and Management, and Public Administration.

College of Education. The College of Education offers curricula leading to the degrees of Bachelor of Arts and Bachelor of Science. Curricula are offered in Academic Education, Art Education, Business Education, Elementary Education, Health Education, Home Economics Education, Industrial Education, Music Education, Nursery School-Kindergarten Education, Physical Education, and Recreation Education.

College of Engineering, The Glenn L. Martin Institute of Technology. The College of Engineering, The Glenn L. Martin Institute of Technology, offers curricula leading to a Bachelor of Science degree in Aeronautical Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Metallurgy.

College of Home Economics. The College of Home Economics offers curricula leading to the degree of Bachelor of Science in Foods and Nutrition, General Home Economics, Home Economics Education, Home Economics Extension, Institution Management, Practical Art and Crafts, and Textiles and Clothing.

College of Military Science. The College of Military Science offers curricula leading to the degree of Bachelor of Science. These curricula are especially designed for those who wish to follow a career in the Armed Forces. The Air Force Reserve Officers' Training Corps, established by the Air Force in cooperation with the University, is a major department in this College. Two years of training in Air Force science is required of all male citizens under the age of thirty years. Any male student in any undergraduate curriculum of the University who is accepted for such training may pursue an advanced course in this field which will lead to a reserve or regular commission in the United States Air Force.

College of Physical Education, Recreation and Health. The College of Physical Education, Recreation and Health offers curricula leading to the degree of Bachelor of Science in Physical Education, in Health, in Pre-Physical Therapy, and in Recreation. In addition, this College conducts the required physical activities program of the freshman and sophomore years designed to correct and improve the physical development of all students.

College of Special and Continuation Studies. The College of Special and Continuation Studies extends the facilities of the University by offering educational programs throughout the State of Maryland and the environs of the District of Columbia. A limited program of late afternoon, evening and Saturday morning courses, both on and off campus, is offered for mature students who are unable to follow a full-time program of studies at College Park. In cooperation with the Armed Services, the College has established overseas teaching centers in the North Atlantic area, Europe, Africa, and the Near East.

The College of Special and Continuation Studies offers a Bachelor of Arts degree in General Studies to mature, adult off-campus students.

Summer School. The Summer School of six weeks' duration provides programs of study to persons who find it convenient to attend the University during the summer months. Instruction is offered in most of the departments of the University. In the College of Education the offerings are considerably expanded. Teachers in service and other persons who are employed during the regular school year are offered a wide variety of courses.

Graduate School. The Graduate School has general jurisdiction over the graduate courses offered in the departments of the University at College Park and Baltimore. Through a program of inter-departmental cooperation under the immediate direction of this School, the University confers the degrees of Master of Arts, Master of Arts in American Civilization, Master of Business Administration, Master of Education, Master of Science, Doctor of Education, and Doctor of Philosophy. The graduate faculty includes all members of the various faculties who give instruction in approved graduate courses.

AT BALTIMORE

The Schools of Dentistry, Law, Medicine, Nursing, and Pharmacy offer curricula leading to professional degrees in their respective fields.

THE ACADEMIC DIVISIONS

Five academic divisions have been established in the University. These are constituted as follows:

The Division of Biological Sciences: Chairman, Dr. John E. Faber, Professor of Bacteriology. This division includes the Departments of Bacteriology, Botany, Entomology, Zoology, and other departments interested in this field.

The Division of Humanities: Chairman, Dr. Adolf E. Zucker, Professor of Foreign Languages. This division includes the Departments of Art, Comparative Literature, English Language and Literature, Foreign Languages and Literature, Music, Practical Art, Philosophy, Speech, and other departments interested in this field.

The Division of Physical Sciences: Chairman, Dr. Wilbert J. Huff, Professor of Chemical Engineering. This division includes the Departments of Chemistry, Engineering, Mathematics, Physics, and other departments interested in this field.

The Division of Social Sciences: Chairman, Dr. Harold E. Hoffsommer, Professor of Sociology. This division includes the Departments of Agricultural Economics, Economics, Government and Politics, History, Home Management, Psychology, Sociology, and other departments interested in this field.

The Lower Division: Chairman, Dr. Charles E. White, Professor of Chemistry. This division includes departments which offer courses to students in the freshman and sophomore years.

DEGREES AND CERTIFICATES

The University confers the following degrees: Bachelor of Arts, Bachelor of Laws, Bachelor of Science, Bachelor of Science in Nursing, Bachelor of Science in Pharmacy, Master of Arts, Master of Arts in American Civilization, Master of Business Administration, Master of Education, Master of Science, Doctor of Dental Surgery, Doctor of Education, Doctor of Medicine, Doctor of Philosophy, Civil Engineer, Chemical Engineer, Electrical Engineer, and Mechanical Engineer.

Students in the two-year curricula may be awarded certificates.

No baccalaureate degree will be awarded to a student who has had less than one year of resident work in this University. The last thirty semester credits in any curricula leading to a baccalaureate degree must be taken in residence at the University. Candidates for the baccalaureate degree in combined curricula at College Park and Baltimore must complete a minimum of thirty semester credits at College Park.

An average mark of C (2.0) is required for graduation. The C average is computed on the basis of the courses required by each student's curriculum. The average of transfer students and of those seeking combined degrees is computed only on the courses taken in residence in the University and in satisfaction of the non-professional curricular requirements of the College granting the degree. An over-all average is also computed to include all courses taken in the University as a basis for the award of honors and for such other uses as may be deemed appropriate. If a course is repeated, the final mark in the course is used in determining credit and in computing the over-all averages.

The requirements for graduation vary according to the character of work in the different Colleges and Schools. Full information regarding specific College requirements for graduation will be found in the catalogs for the various Colleges.

Each candidate for a degree must file, eight weeks prior to the date he expects to graduate, a formal application for a degree in the Office of the Registrar. Candidates for degrees must attend a convocation at which degrees are conferred and diplomas are awarded. Degrees are conferred *in absentia* only in exceptional cases.

FEES AND EXPENSES

General

All checks or money orders should be made payable to the University of Maryland for the exact amount of the charges. In cases where students have been awarded General Assembly Grants or University Grants, the amount of such grants will be deducted from the bill.

All fees are due and payable at the time of registration, and students should come prepared to pay the full amount of the charges. No student will be admitted to classes until such payment has been made. Veterans are required to comply with these conditions if the University does not have in its possession at the time of registration an approved Certificate of Eligibility and Entitlement from the Veterans Administration.

The University reserves the right to make such changes in fees and other charges as may be found necessary, although every effort will be made to keep the costs to the student as low as possible.

No degree will be conferred, nor any diploma, certificate, or transcript of record issued to a student who has not made satisfactory settlement of his account.

EXPLANATION OF FEES

The Fixed Charges Fee is not a charge for tuition. It is a charge to help defray the cost of operating the University's physical plant, to pay administrative and clerical expenses and other costs which ordinarily would not be included as a cost of teaching personnel and teaching supplies.

The Athletic Fee is charged for the support of the Department of Inter-collegiate Athletics. All students are eligible and all students are encouraged to participate in all of the activities of this department and to attend all contests in which they do not participate.

The Special Fee is used to pay interest on and amortize the cost of construction of the Student Union Building, the Activities Building, and the Swimming Pool.

The Student Activities Fee is a mandatory fee included at the request of the Student Government Association. It covers subscription to the *Diamondback*, student newspaper; the *Old Line*, literary magazine; the *Terrapin*, yearbook; class dues; and includes financial support for the musical and dramatic clubs.

The Infirmary Fee is charged for the support of the Student Health Service but does not include expensive drugs or special diagnostic procedures. Expensive drugs will be charged at cost and special diagnostic procedures, such as x-ray, electro-cardiographs, basal metabolic rates, etc., will be charged at the lowest cost prevailing in the vicinity.

Students who register for the second semester but not for the first semester are required to pay the following additional fees: Athletic, \$7.50; Student Activities, \$8.00; Special, \$20.00; Infirmary, \$2.50; Advisory and Testing, \$5.00.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in the State of Maryland for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents of Maryland by maintaining such residence for at least one full year. However, the right of the minor student to change from a non-resident status to resident status must be established by him prior to the registration period set for any semester.

Adult students are considered to be residents if at the time of their registration they have been domiciled in Maryland for at least one year provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word "domicile" as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be maintained.



FROM THE AIR . . .
Two Views of the College Park Campus



FEES FOR RESIDENTS AND NON-RESIDENTS

Fees for Undergraduate Students:	First	Second	
Maryland Residents	Semester	Semester	Total
Fixed Charges	\$ 82.00	\$ 83.00	\$165.00
Athletic Fee	15.00	....	15.00
Student Activities Fee.....	10.00	....	10.00
Special Fee	40.00	....	40.00
Infirmary Fee	5.00	....	5.00
Advisory and Testing Fee.....	5.00	....	5.00
	\$157.00	\$ 83.00	\$240.00

Residents of the District of Columbia, Other States and Countries	Semester	Semester	Total
Tuition Fee for Non-Resident Students	\$125.00	\$125.00	\$250.00
Total for Non-Resident Students...	\$282.00	\$208.00	\$490.00

Board and Lodging			
Board	\$180.00	\$180.00	\$360.00
Dormitory Room:			
Maryland Residents	70-85	70-85	140-170
Other States and Countries.....	90-110	90-110	180-220

The above fees do not apply to the temporary Veterans' Housing Units. The rates for these units are as follows:

Family Units: Two-room apartment \$40 per month; three-room apartment \$43 per month.

SPECIAL FEES

Matriculation Fee for undergraduates, payable at time of first registration in the University.....	\$ 10.00
Diploma Fee for Bachelor's degree.....	10.00
Engineering College Fee, per semester.....	4.00
Home Economics College Fee, per semester.....	10.00
Special Fee for students requiring additional preparation in Mathematics, per semester	30.00
(Required of students whose curriculum calls for Math. 5, 10 or 15 and who fail in qualifying examination for these courses.)	
Special Guidance Fee per semester (for students who are required or who wish to take advantage of the effective study course, and/or the tutoring service offered by the Dean of Students' Office.....)	15.00
R. O. T. C. Uniform Cleaning Fee, per year (Applicable to students registered in Basic R. O. T. C.—refundable if uniform is not issued)....	2.50

Room Key Deposit (A room key deposit is payable upon initial entry to the dormitories. Upon return of the key, a refund will be made whenever the student does not plan to re-enter the dormitories the next succeeding semester.) 1.00

Fees for Auditors are exactly the same as fees charged to students registered for credit, with the exception that the non-resident fee will not be charged in the case of students not registering for credit in any courses.

LABORATORY AND OTHER FEES

Laboratory Fees Per Semester Course:

Agricultural Engineering	\$ 3.00	Foods and Home Management, each	7.00
Bacteriology	10.00 and 20.00	Horticulture	5.00
Botany	5.00 and 10.00	Industrial Education....	5.00 and 7.50
Business Administration	7.50	Journalism	3.00 and 6.00
Statistics	3.50	Mechanical Engineering	3.00
Chemical Engineering	8.00	Music (Applied Music only)....	40.00
Chemistry	10.00	Physical Activities Courses.....	3.00
Education (depending on Laboratory)	1.00, 2.00, 3.00, 5.00	Physics—	
Practice Teaching	30.00	Lecture Demonstration	2.00
Dairy	3.00	Introductory	3.00
Electrical Engineering	4.00	All Other	10.00
Entomology	3.00	Psychology	4.00
Home Economics—		Office Techniques and Management	7.50
(Non-Home Economics students)		Speech—	
Practical Art, Crafts, Textiles and Clothing	3.00	Radio and Stagecraft.....	2.00
		All Other	1.00
		Zoology	8.00

Miscellaneous Fees and Charges

Fee for part-time students per credit hour..... 10.00

(The term "part-time students" is interpreted to mean undergraduate students taking 6 semester credit hours or less. Students carrying more than 6 semester hours are considered to be full time and must pay the regular full-time fees.)

Late Registration Fee..... 5.00

(All students are expected to complete their registration, including the filing of class cards and payment of bills, on the regular registration days. Those who do not complete their registration during the prescribed days must pay this fee.)

Fee for change in registration..... 3.00

Fee for failure to report for medical examination appointment..... 2.00

Special Examination Fee—to establish college credit—per semester hour 5.00

Makeup Examination Fee (for students who are absent during any class period when tests or examinations are given)..... 1.00

Transcript of Record Fee (one transcript furnished without charge).... 1.00

Property Damage Charge: Students will be charged for damage to property or equipment. Where responsibility for the damage can be fixed, the individual student will be billed for it; where responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated.

Library Charges:

Fine for failure to return book from General Library before expiration of loan period per day .05

Fine for failure to return book from Reserve Shelf before expiration of loan period:

First hour overdue 25

Each additional hour overdue..... .05

In case of loss or mutilation of a book, satisfactory restitution must be made.

Textbooks and Supplies

Textbooks and classroom supplies: These costs vary with the course pursued, but will average per semester..... 35.00

Fees for Graduate Students

Fees for students carrying 10 or more semester credit hours.....100.00

Fee per semester hour for students carrying less than 10 semester credit hours 10.00

Matriculation Fee, payable only once, at time of first registration..... 10.00

Diploma Fee for Master's Degree..... 10.00

Graduation Fee for Doctor's Degree..... 50.00

Foreign Language examination (first examination without charge)..... 5.00

Notes: Fees in the Graduate School are the same for all students, whether residents of the State of Maryland or not.

All fees, except Diploma Fee and Graduation Fee, are payable at the time of registration for each semester.

Diploma Fee and Graduation Fee must be paid prior to graduation.

No provision for housing students is made by the University.

Medical attention is not provided for graduate students; consequently, no Infirmary Fee is charged.

Fees for Off-Campus Courses

Matriculation Fee (payable once, at time of first registration by all students—full time and part time, candidates for degrees, and non-candidates):

For Undergraduates 10.00

For Graduates 10.00

Fee for all students—limit 6 hours. For exceptional adult students taking off-campus courses the limit may be increased to 9 hours. Charge per credit hour 10.00

Laboratory Fees: A laboratory fee,* to cover cost of materials used, is charged in laboratory courses. Fees vary with the course and can be ascertained in any case by inquiry to the Dean of the College of Special and Continuation Studies.

WITHDRAWAL AND REFUND OF FEES

Any student compelled to leave the University at any time during the academic year should file an application for withdrawal, bearing the proper signatures, in the Office of the Registrar. If this is not done, the student will not be entitled, as a matter of course, to a certificate of honorable dismissal, and will forfeit his right to any refund to which he would otherwise be entitled. The date used in computing refunds is the date the application for withdrawal is filed in the Office of the Registrar.

In the case of a minor, withdrawal will be permitted only with the written consent of the student's parent or guardian.

Students withdrawing from the University will receive a refund of all charges except board, deposits for room reservations, less the Matriculation Fee in accordance with the following schedule:

<i>Period from Date Instruction Begins</i>	<i>Percentage Refundable</i>
Two weeks or less.....	80%
Between two and three weeks.....*	60%
Between three and four weeks.....	40%
Between four and five weeks.....	20%
Over five weeks.....	0

Board is refunded only in the event the student withdraws from the University. Refunds of board are made on a pro-rata, weekly basis. Dining Hall tickets issued to boarding students must be surrendered at the Dining Hall office the day of withdrawal.

In computing refunds to students who have received the benefit of scholarships, the computation will be made in such a way as to return the maximum

amount to the scholarship account without loss to the University.

No refund of the Athletic, Student Activity, Special, Infirmary, and Advisory and Testing Fees is made to students who withdraw at the close of the first semester.

No refunds of Fixed Charges, Lodging, Tuition, Laboratory Fees, etc., are allowed when courses are dropped, unless the student withdraws from the University.

When regularly enrolled part-time students in off-campus instruction officially drop a course or courses and continue with one or more courses, they may receive a refund of 80% for the dropped courses if they are officially dropped prior to the third meeting of the class or classes.

TRANSCRIPTS OF RECORDS

Students and alumni may secure transcripts of their scholastic records from the Office of the Registrar. No charge is made for the first copy; for additional copies, there is a charge of \$1.00 for each transcript, except when more than one copy is requested at the same time. In that case, one dollar is charged for the first copy, and fifty cents for each additional copy. Checks should be made payable to the University of Maryland. Transcripts of records should be requested at least one week in advance of the date when the records are actually needed. No transcript of a student's record will be furnished any student or alumnus whose financial obligations to the University have not been satisfied.

SCHOLARSHIPS AND GRANTS-IN-AID

All requests for information concerning scholarships and grants-in-aid should be addressed to the Chairman of the Committee on Scholarships and Grants-in-Aid, University of Maryland, College Park, Maryland. Regulations and procedures for the award of scholarships are formulated by this committee.

The Board of Regents of the University authorizes the award of a limited number of scholarships each year to deserving students. All scholarships and grants for the undergraduate departments of the University at College Park are awarded by a faculty committee. Applicants are subject to the approval of the Director of Admissions insofar as qualifications for admission to the University are concerned. All recipients are subject to the academic and non-academic regulations and requirements of the University.

Scholarships are awarded on the basis of apparent qualifications for leadership. In making awards consideration is given to character, achievement, participation in student activities, and to other attributes which may indicate potential leadership. The intention of the Committee on Scholarships is to make awards to young men and women who possess the above-mentioned qualifications and who might not otherwise be able to provide for themselves an opportunity for higher education.

The types of scholarships, grants and loan funds available are as follows:

Full Scholarships

The University awards fifty-six full scholarships covering board, lodging, fixed charges, and fees. Not more than twenty of these scholarships may be held by out-of-state students and at least twelve are reserved for women. Scholastic achievement and participation in student activities are given primary consideration in the award of these scholarships.

University Grants

The University awards to deserving and qualified secondary school graduates a limited number of grants covering fixed charges only.

General Assembly Grants

These grants are for fixed charges only and are awarded by members of the Legislature, three for each Senator and one for each member of the House of Delegates. They may be awarded by a member of the House of Delegates or by a Senator only to persons in the county or in the legislative district of Baltimore City which the Delegate or Senator represents. Awards of such grants are subject to approval by the Committee on Scholarships and by the Director of Admissions as to qualifications for admission.

Special Grants

A limited number of grants is awarded each year out of funds derived from campus enterprises.

Endowed Scholarships and Grants

The University has a number of endowed scholarships and special grants. These are paid for by income from funds especially established for this purpose. Brief descriptions of these awards follow:

Albright Scholarship. The Victor E. Albright Scholarship is open to graduates of Garrett County high schools who were born and reared in that county. Application should be made to the high school principals.

Baltimore Sunpapers Scholarship in Journalism. The Board of Trustees of the A. S. Abell Foundation, Inc., has contributed \$500 to provide a scholarship in journalism to be awarded to a worthy senior in the College of Business and Public Administration who is majoring in Editorial Journalism.

Samuel Wolfe Blankman Grant. The sum of \$100 is awarded each year to a foreign student on the basis of worth and need to be determined by the Committee on Scholarships. The student must be a permanent resident of a country other than the United States, its possessions, or Canada. He may be a member of any college or School in the University.

American Society for Metals Scholarship in Metallurgy. A scholarship of \$400 is available to a competent student in the field of Metallurgy. The award will be made by the faculty in Metallurgy in accordance with the general principles underlying the award of all scholarships in the University.

Borden Agricultural and Home Economics Scholarships. A Borden Agricultural Scholarship of \$300 is granted to that student in the College of Agriculture who has had two or more of the regularly listed courses in dairying and who, upon entering the senior year of study, has achieved the highest average grade of all other similarly eligible students in all preceding college work.

A Borden Home Economics Scholarship of \$300 is granted to that student in the College of Home Economics who has had two or more of the regularly listed courses in food and nutrition and who, upon entering the senior year of study, has achieved the highest average grade of all other similarly eligible students in all preceding college work.

W. Atlee Burpee Company Scholarship Award in Horticulture. A scholarship award of \$100, open to upper class students in Horticulture, has been established by the W. Atlee Burpee Company, Seed Growers, Philadelphia, Pennsylvania, and Clinton, Iowa. Its purpose is to encourage and stimulate interest in flower and vegetable growing. The award is made on the basis of scholarship, experience, and interest in research.

The Danforth Foundation and the Ralston Purina Scholarships. The Danforth Foundation and the Ralston Purina Company of St. Louis offer two summer scholarships to outstanding men students in the College of Agriculture, one for a student who has successfully completed his junior year, the other for a student who has successfully completed his freshman year. The purpose of these scholarships is to bring together outstanding young men for leadership training.

The Danforth Foundation and the Ralston Purina Company of St. Louis offer two summer scholarships to outstanding Home Economics women students, one to a junior and one to a freshman. The purpose of these scholarships is to bring together outstanding young women for leadership training.

Dairy Technology Scholarships. The Dairy Technology Society of Maryland and the District of Columbia provides a limited number of scholarships for students majoring in Dairy Products Technology. These scholarships are available both to high school graduates entering the University as freshmen and to students who have completed one or more years of their University curriculum. The purpose of these scholarships is to encourage and stimulate interest in the field of milk and milk products. The awards are based on scholarship, leadership, personality, need, experience, interest in and willingness to work in the field of dairy technology. The Dairy Technological Society cooperates with the Committee on Scholarships in making these awards.

Exel Scholarships. A substantial grant for endowed scholarships was made by Deborah B. Exel. These awards are made by the Committee on Scholarships to worthy students in accordance with the general principles underlying the award of all other scholarships.

Food Fair Stores Foundation Scholarships. Each year a number of scholarships is made available by the Food Fair Stores Foundation to students from Anne Arundel, Baltimore and Montgomery Counties and Baltimore City. Stu-

dents receiving these scholarships may pursue any of the four-year curricula of the University. The scholarships are for \$250.00 for an academic year and are awarded by the Committee on Scholarships as in the case of all other scholarships. Under certain conditions they may be granted from year to year.

Victor Frenkil Scholarship. A scholarship of \$250 is granted annually by Mr. Victor Frenkil of Baltimore to a student from Baltimore City in the freshman class of the University. This scholarship is awarded in cooperation with the Committee on Scholarships in accordance with the general principles underlying the award of all other scholarships.

General Motors Scholarship. This scholarship is granted annually to any young man or young woman who is an outstanding individual entering the freshman year. The scholarship is awarded by the Committee on Scholarships. The amount of the stipend depends upon the demonstrated need of the individual. The Sponsored Scholarship Service evaluates the financial need in each case.

Goddard Memorial Scholarships. Four \$500 scholarships are available annually under the terms of the James and Sarah E. R. Goddard Memorial Fund established through the wills of Morgan E. Goddard and Mary W. Goddard. In granting these awards the Committee on Scholarships will consider outstanding scholastic achievement and financial need. Each award will be made on a year-to-year basis depending upon the accomplishment of the student.

John William Guckeyson Memorial Scholarship. Each year a \$100 scholarship is made available to a freshman student in memory of John William Guckeyson of the Class of 1937. The award is based on scholastic and athletic abilities and is granted by the Committee on Scholarships.

William Randolph Hearst Scholarships. These scholarships are made available through a gift of the Baltimore *News-Post*, one of the Hearst newspapers, in honor of William Randolph Hearst. The undergraduate scholarship of \$400 annually is open to the graduate of any high school in America. The graduate scholarship of \$600 annually is open to the graduate of any college or university in America. These scholarships are awarded for special work in the University's Program in American Civilization.

Home Economics in Business Scholarships. Eight \$100 scholarships are made available each year by Home Economics in Business, an organization of home economists in the District of Columbia, for freshmen in the College of Home Economics; they are open to any young women residents of the District of Columbia, Prince George's or Montgomery Counties in Maryland, and Arlington and Fairfax Counties or Alexandria in Virginia. These scholarships are awarded by the Committee on Scholarships on a competitive basis in accordance with the general principles underlying the award of all other scholarships. Unless otherwise notified, applicants should write to the Chairman, Committee on Scholarships.

Home Economics M Grants. Each year several grants are made available by Dean Marie Mount to students who enter the College of Home Economics. These grants are for varying amounts and are awarded by the Committee on Scholarships.

Interfraternity Council Scholarships. Each year the Interfraternity Council of the University provides funds for four \$200 scholarships. These annual scholarships are awarded at the discretion of the Committee on Scholarships to deserving undergraduate male students.

Iota Lambda Sigma (Nu Chapter) Scholarship. This scholarship is awarded annually to any outstanding male freshman student who enrolls in the Industrial Education curriculum. The student must be a resident of the State of Maryland and signify his intention of teaching in Maryland.

Venia M. Keller Grant. This grant of \$100 is open to a Maryland young man or woman of promise who wishes to enroll or is enrolled in the College of Home Economics. It is awarded through the College of Home Economics in cooperation with the Committee on Scholarships.

Kiwanis Scholarship. A Kiwanis Memorial Scholarship of \$200 per year is awarded by the Prince George's County Kiwanis Club to a male resident of Prince George's County, Maryland, who, in addition to possessing the necessary qualifications for maintaining a satisfactory scholarship record, must have a reputation of high character and attainment in general all-around citizenship.

Helen Aletta Linthicum Scholarships. These scholarships, several in number, were established through the benefaction of the late Mrs. Helen Aletta Linthicum, widow of the late Congressman Charles J. Linthicum, who served in Congress from the Fourth District of Maryland for many years. They are granted to worthy young men and women who are residents of the State of Maryland and who have satisfactory high school records, forceful personality, a reputation for splendid character and citizenship, and the determination to get ahead.

The M Club Grants. The M Club of the University of Maryland provides each year a limited number of awards. They are granted by the Committee on Scholarships to applicants who show promise in sports other than football.

Dr. Frank C. Marino Scholarship. Dr. Frank C. Marino provides a \$200 annual scholarship in Nursing Education. As vacancies in this scholarship occur, it is awarded by the Committee on Scholarships to a student who demonstrates special interest and promise in this field.

Maryland Educational Foundation Grants. The Maryland Educational Foundation provides funds each year for the education of several promising young men. These grants are awarded by the Committee on Scholarships to applicants who qualify under the provision of the Foundation.

Maryland Association of Certified Public Accountants Scholarship. A \$200 scholarship is awarded to a superior student in the College of Business and Public Administration who is concentrating in Accounting. This award is made through the College of Business and Public Administration in cooperation with the Committee on Scholarships.

Eugene and Agnes E. Meyer Scholarships. A number of scholarships is made available each year to promising students in meeting the costs of further-

ing their education, with preferential consideration to children of persons employed in public service, including service in the armed forces and the judiciary. The awards are made by the Committee on Scholarships in accordance with the general principles underlying the award of all other scholarships.

Miller Chemical and Fertilizer Corporation Scholarship. A \$250 scholarship has been made available for a student who needs financial aid, who has a farm background, and who has a major in Entomology, Plant Pathology, Agronomy, or Horticulture. The award is made by the Committee on Scholarships in accordance with the general principles underlying the award of all other scholarships.

Mortar Board Scholarship. The Mortar Board Scholarship is awarded annually to a woman student on the basis of scholastic attainment, character, and need. The selection of the student for this award is made through the Office of the Dean of Women and a representative of Mortar Board in cooperation with the Committee on Scholarships in accordance with the general principles underlying the award of all other scholarships.

Panhellenic Association of Washington, D. C., Scholarship. A \$200 scholarship is awarded annually by the Panhellenic Association of Washington, D. C. This award is made to a member of a national Panhellenic Conference Sorority who in her sophomore or junior year has had a 3.0 average or better, who has done the most to promote good social relations among the sororities on the campus, and who is an outstanding leader in student affairs sponsored by the University. The award is made by the Committee on Scholarships in terms of the provisions of the grant.

Peninsula Horticultural Society Scholarship. The Peninsula Horticultural Society provides annually a \$200 scholarship to the most deserving junior or senior student, a resident of Maryland from the Eastern Shore counties, who is majoring in Horticulture or related subjects, particularly as they apply to the culture of fruits and vegetables. The award is made in cooperation with the Committee on Scholarships.

Mrs. Luther Ruark Memorial Scholarship. The Mrs. Luther Ruark Memorial Scholarship of \$165 is provided annually for a deserving woman undergraduate student by the Alpha Epsilon Phi Sorority in honor of Mrs. Ruark's excellent standards and high idealism as housemother of the Alpha Mu Chapter. The scholarship is awarded by the Committee on Scholarships in accordance with the general principles underlying the award of all other scholarships.

The Sears Roebuck Foundation Grants. Ten grants of \$200 each are provided by the Sears Roebuck Foundation to the sons of Maryland farmers who enroll in the freshman class of the College of Agriculture. One \$250 grant is awarded each year to the sophomore student in the College of Agriculture who has proved to be the outstanding student holding a Sears Roebuck grant during the previous year. These grants are awarded annually by the Committee on Scholarships.

A limited number of similar grants from the Sears Roebuck Foundation is also available for students in the College of Home Economics.

Tilghman Agricultural Scholarship. The William B. Tilghman Company, of Salisbury, Maryland, provides a \$1,000 scholarship, \$250 for each of four years. The scholarship is open to male students in Somerset, Wicomico, and Worcester Counties who plan to enter the College of Agriculture. The student must stand in the upper half of his class during the four year period. The award is made by the Committee on Scholarships in terms of the provision of the grant. Applications may be procured through the William B. Tilghman Company.

Union Carbide and Carbon Company Scholarship. A scholarship covering tuition and fees for a senior majoring in Engineering is sponsored by the Bakelite Company. The award is made through the College of Engineering in cooperation with the Committee on Scholarships.

J. McKenny Willis and Son Grant. A grant of \$500 is made available annually by J. McKenny Willis and Son, Inc., Grain, Feed and Seed Company of Easton, Maryland, to an outstanding student in vocational agriculture in Talbot County who will matriculate in the College of Agriculture. This grant is assigned by the Committee on Scholarships in accordance with the terms of the award. Application blanks for this grant may be procured at the Office of the County Superintendent of Schools of Talbot County or by writing directly to the Chairman of the Committee on Scholarships.

Washington Flour Scholarship. This scholarship, provided by the Wilkins-Rogers Milling Company of Washington, D. C., for freshmen in the College of Home Economics, covers all fees and books for one year, and is open to any student who is a resident of the District of Columbia, of Prince George's or Montgomery Counties in Maryland, or Arlington or Fairfax Counties, or Alexandria in Virginia. It is awarded annually by the Committee on Scholarships in accordance with the general principles underlying the award of all other scholarships.

American Bankers' Association Loan Fund. This fund provides loans of \$250 for one year only to senior or graduate students who are emphasizing Banking, Economics, or related subjects.

Catherine Moore Brinkley Loan Fund. Under the will of Catherine Moore Brinkley, a loan fund is available for worthy students who are natives and residents of Maryland, and who are studying Mechanical Engineering or Agriculture at the University.

Home Economics Loan Fund. A loan fund, established by the District of Columbia Home Economics Association, is available for students majoring in Home Economics.

Henry Strong Educational Foundation Fund. From this fund, established under the will of General Henry Strong of Chicago, an annual allotment is made to the University of Maryland at College Park for scholarship loans to young men and women students under the age of twenty-five. Recommendations for these loans are limited, in most part, to students in the junior and senior years. Only students who through stress of circumstances require financial aid and who have demonstrated excellence in educational progress are considered in making nominations to the Secretary of this fund.

STUDENT EMPLOYMENT AND SENIOR PLACEMENT

A considerable number of students earns money through employment while in attendance at the University. No student should expect, however, to earn enough to pay all of his expenses. Although earnings vary, some students earn from one fourth to three fourths of all required funds. Generally, the first year is the hardest for those desiring employment. After students have demonstrated that they are worthy and capable, there is much less difficulty in finding work.

The University assumes no responsibility in connection with employment. It does, however, make every effort to aid needy students. A list of available positions in the University and in nearby towns is placed at the disposal of students. Application for employment should be made to the Director of Student Welfare.

A placement service is also maintained to assist graduating seniors in finding employment.

HONORS AND AWARDS

Scholarship Honors. Final honors for excellence in scholarship are awarded to one fifth of the graduating class in each College. **First Honors** are awarded to the upper half of this group; **second honors** to the lower half. To be eligible for honors, a student must complete at least two years of resident work at the University with an average of B (3.00) or higher.

Alpha Chi Sigma Award. The Alpha Rho Chapter of the Alpha Chi Sigma Honorary Fraternity offers annually a year's membership in the American Chemical Society to the senior majoring in Chemistry or Chemical Engineering whose average has been above 3.00 for three and one half years.

Alpha Lambda Delta Senior Certificate Award. Senior members of Alpha Lambda Delta, honorary scholastic society, who have maintained an average of 3.5 receive this certificate.

Alpha Zeta Medal. The Honorary Agricultural Fraternity of Alpha Zeta awards annually a medal to the agricultural student in the freshman class who attains the highest average record in academic work.

American Association of University Women Award. This award is presented to a senior girl selected for scholarship and community leadership.

American Society of Civil Engineers Award. A junior membership in the American Society of Civil Engineering is awarded to the senior in the Department of Civil Engineering who has the highest scholastic standing.

Dinah Berman Memorial Medal. The Dinah Berman Memorial Medal is awarded annually to the sophomore who has attained the highest scholastic average of his class in the College of Engineering. The medal is given by Mr. Benjamin Berman.

Citizenship Prize for Men. President Emeritus H. C. Byrd, of the Class of 1908, annually presents this award to the member of the senior class who,

during his collegiate career, has most nearly typified the model citizen and who has done most for the general advancement of the interests of the University.

Citizenship Prize for Women. This prize is presented annually as a memorial to Sally Sterling Byrd, by her children, to that girl member of the senior class who best exemplifies the enduring qualities of the pioneer woman. These qualities typify self dependence, courtesy, aggressiveness, modesty, capacity to achieve objectives, willingness to sacrifice for others, strength of character, and those other qualities that enabled the pioneer woman to play such a fundamental part in the building of the nation.

Bernard L. Crozier Award. The Maryland Association of Engineers awards a cash prize of twenty-five dollars annually to the senior in the College of Engineering who, in the opinion of the faculty, has made the greatest improvement in scholarship during his stay at the University.

Delta Delta Delta Medal. This sorority awards a medal annually to the girl who attains the highest average in academic work during the sophomore year.

Delta Gamma Scholarship Award. This award is offered to the woman member of the graduating class who has maintained the highest average during three and one-half years at the University.

Delta Sigma Pi Scholarship Key. This award is offered to a member of the graduating class who has maintained the highest scholastic average for the entire four-year course in the College of Business and Public Administration.

Goddard Medal. The James Douglass Goddard Memorial Medal is awarded annually to the resident of Prince George's County, born therein, who makes the highest average in his studies and who at the same time embodies the most manly attributes. The medal is given by Mrs. Anne G. Goddard James of Washington, D. C.

Grange Award. The Maryland State Grange makes an annual award to the senior who has excelled in leadership and scholastic attainment and has contributed meritorious service to the College of Agriculture.

Mahlon N. Haines Art Award. An award of one hundred dollars is presented each year to the students in the Department of Fine Arts for outstanding work in the painting classes.

Charles B. Hale Dramatic Awards. The University Theatre recognizes annually the man and woman members of the senior class who have done most for the advancement of dramatics at the University.

Maryland Motor Truck Association Award. A five hundred dollar award is made to a student majoring in Transportation with an interest in motor transportation who has shown in three years of training an apparent ability to succeed. This award is made through the College of Business and Public Administration.

Omicron Nu Sorority Medal. This honorary sorority awards a medal annually to the freshman girl in the College of Home Economics who attains the highest scholastic average during the first semester.

Phi Alpha Award. Epsilon Chapter of Phi Alpha Fraternity awards annually a plaque to the man in the junior class who has attained the highest scholastic average during his first two years at the College Park Colleges of the University.

Pilot Freight Carries, Inc., Award. A five hundred dollar award is made to a senior student in the College of Business and Public Administration who has majored in Transportation and who has demonstrated competence in this field of study. This award is made through the College of Business and Public Administration.

Pi Sigma Alpha—Fred Hays Memorial Award. This award, consisting of the sum of thirty dollars, is presented by an alumnus to the senior in Government and Politics having the highest average in departmental courses.

William S. Rosenbaum Memorial Foundation Award. This award, consisting of twenty-five dollars, is presented for excellence in Hebrew studies by Barbarossa Lodge 133, Knights of Pythias, Philadelphia, Pennsylvania.

Sigma Alpha Omicron Award. This award is presented to a senior student majoring in Bacteriology for high scholarship, character and leadership.

Sigma Chi Cup. Sigma Chi Fraternity offers annually a cup to the man in the freshman class who has made the highest scholastic average during the first semester.

Algernon Sydney Sullivan Award. The New York Southern Society, in memory of its first president, awards annually medallions and certificates to one man and one woman of the graduating class and one non-student who evince in their daily life a spirit of love for and helpfulness to other men and women.

Tau Beta Pi Award. The Maryland Beta Chapter of Tau Beta Pi, an honorary fraternity, awards annually an engineer's handbook to the junior in the College of Engineering who during his sophomore year has made the greatest improvement in scholarship over that of his freshman year.

Washington Panhellenic Association Award. The sum of two hundred dollars is presented to a woman student, a member of a National Panhellenic Conference Sorority, who has done most to promote social relations among the sororities on the campus.

MILITARY AWARDS

Air Force Association Medal. Two silver medals are awarded to the outstanding first and second year students in the A.F.R.O.T.C. course who have demonstrated outstanding ability in scholastic grades, both general and military, in individual characteristics, and in performance during the period of summer camp.

Alumni Cup. The Alumni Association offers each year a cup to the Leader of the best drilled Flight in competitive drill.

American Legion Citizenship Award. This award is presented to the first year advanced cadet who displays outstanding citizenship.

Armed Forces Communications Medal. This medal is awarded to the senior advanced cadet in recognition of outstanding achievement in the field of electronics.

Arnold Air Society Plaque. This plaque is awarded to the second year advanced cadet who has done the most to advance the A.F.R.O.T.C. interests and activities for the Arnold Air Society.

Consolidated Vultee Aircraft Corporation Award. This award is presented to the sophomore cadet displaying leadership ability and academic excellence.

Disabled American Veterans' Gold Cup. This cup is awarded to the senior advanced cadet who has displayed outstanding leadership, scholarship, and citizenship.

Distinguished Military Student Awards. These awards are presented to senior cadets who have been outstanding in A.F.R.O.T.C. and who are outstanding in their academic major fields.

Governor's Cup. This cup is offered each year by His Excellency, the Governor of Maryland, to the best drilled squadron.

Hamill Memorial Plaque. This plaque, offered by the local chapter of Theta Chi Fraternity, is presented to the sophomore cadet excelling in leadership and scholarship.

Glenn L. Martin Aeronautical Engineering Award. This award is presented for academic excellence to a senior advanced cadet who has applied for flight training.

Maryland State Society Daughters of Founders and Patriots of America Award. This award is presented to the freshman cadet attaining the highest over-all academic grades.

National Defense Transportation Association Award. This organization offers a citation in recognition of leadership qualities, academic standing, aptitude for military service, and noteworthy service in furtherance of the aims and objectives of the Association in promoting preparedness for the national defense of the United States.

Pershing Rifle Award. The Pershing Rifle Company presents a medal to the best drilled cadet who is not a member of the Pershing Rifles.

Pershing Rifle Medal. This medal is awarded to the outstanding member of the Pershing Rifles.

Republic Aviation Award. This award is presented to a second year advanced cadet for achievement in the field of aircraft maintenance.

Reserve Officers' Association Medals. Three medals, gold, silver, and bronze, are presented by this association to the three senior cadets demonstrating outstanding academic achievement in the A.F.R.O.T.C. and in other studies.

Reserve Officers' Association Ribbons. The Air Force Reserve Officers' Association presents ribbons to the five outstanding freshman cadets, the five

outstanding sophomore cadets, and to members of the best drilled squad.

Scabbard and Blade Coblenz Memorial Trophy. This trophy is offered to the leader of the best drilled squad in competitive drill.

Sun Newspaper Award. This award is presented to a basic cadet in recognition of being the best drilled basic cadet in competitive drill.

ATHLETIC AWARDS

Tom Birmingham Memorial Trophy. This trophy, awarded by Major Benny Alperstein and Major Hotsy Alperstein in memory of the late Tom Birmingham, of the Class of 1937, is presented to the outstanding member of the boxing team.

Louis W. Berger Trophy. This trophy is awarded to the outstanding senior baseball player.

William P. Cole, III, Memorial Lacrosse Award. This award, offered by the teammates of William P. Cole, III, and the coaches of the 1940 National Champion team, is presented to the outstanding midfielder.

Halbert K. Evans Memorial Track Award. This award, given in memory of Hermie Evans, of the Class of 1940, by his friends, is presented to the outstanding graduating senior trackman.

Charles Leroy Mackert Trophy. This trophy is offered by William E. Krouse to the Maryland student who has contributed most to wrestling while at the University.

Maryland Ring. The Maryland Ring is offered as a memorial to Charles L. Linhardt, of the Class of 1912, to the Maryland man who is adjudged the best athlete of the year.

Anthony C. Nardo Memorial Trophy. This trophy is awarded to the best football lineman of the year.

Edwin Powell Trophy. This trophy is offered by the Class of 1913 to the player who has rendered the greatest service to lacrosse during the year.

Silvester Watch for Excellence in Athletics. A gold watch, given in honor of former President of the University R. W. Silvester, is offered annually to "the man who typifies the best in college athletics."

Teke Trophy. This trophy is offered by the Maryland Chapter of Tau Kappa Epsilon Fraternity to the student who during his four years at the University has rendered the greatest service to football.

Dixie Walker Memorial Trophy. This trophy, offered by Theta Chi Fraternity, is awarded to the boxer who has shown the most improvement over his performance in preceding years.

STUDENT GOVERNMENT AWARDS

Medals are awarded to members of the Executive Committee of the Student Government Association who faithfully perform their duties throughout the year.

REGULATION OF STUDIES

Schedule of Classes. A schedule of classes, giving days, hours, and rooms, is issued as a separate pamphlet at the beginning of each semester. Classes are scheduled to begin at 8:00 A. M. Instructions concerning registration procedures are given in the *Schedule of Classes*.

Definition of Credit Unit. The semester hour, which is the unit of credit in the University, is the equivalent of a subject pursued one period a week for one semester. Two or three periods of laboratory or field work are equivalent to one lecture or recitation period.

Examinations. Examinations are held at the end of each semester in accordance with the official schedule. Students are required to use the prescribed examination book during final examinations and tests if requested by the instructor.

Marking System. The following symbols are used for marks: A, B, C, and D, passing; F, failure; I, incomplete. Mark A denotes superior scholarship; mark B, good scholarship; mark C, fair scholarship; and mark D, passing scholarship.

In computing scholarship averages, the following numerical values are used: A—4; B—3; C—2; D—1; F—0.

Academic Regulations. A separate pamphlet entitled *Academic Regulations* is published each year, listing the regulations which govern the academic work and other activities of students.

Grade Reports. Written reports of grades are sent by the Registrar at the close of the semester to parents or guardians of minor students who are not veterans.

Junior Standing. The requirement for junior standing is, in addition to the required military and physical education courses, fifty-six (56) semester hours of academic credit, the whole program to be completed with an average grade of C.

Delinquent Students. A student must attain passing marks in fifty per cent of the semester hours for which he is registered, or he is automatically dropped from the University. The Registrar notifies the student, his parent or guardian, and the student's Dean of this action. A student who has been dropped for scholastic reasons may appeal in writing to the Committee on Admission, Guidance, and Adjustment for reinstatement. The Committee is empowered to make adjustments when desirable. A student who has been dropped from the University for scholastic reasons and whose petition for reinstatement is denied may again petition after a lapse of at least one semester.

The University reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his or her health, or to the health of others, or whose conduct is not satisfactory to the authorities of the University. Students of the last class may be asked to withdraw even though no specific charge be made against them.

According to University regulations, excessive absence from any course is penalized by failure in the course. Students who are guilty of persistent absence from any course will be reported to the President or to his appointed representative for final disciplinary action.

LIVING ARRANGEMENTS

Dormitories

1. Room Reservations. All new students desiring to room in the dormitories should request room application cards by so indicating on their applications for admission. The Director of Admissions will refer these applications to the Offices of the Dean of Men or the Dean of Women. Application cards or blanks will be sent to applicants and should be promptly returned to the proper office. A fee of \$25.00 will be required, which will be deducted from the first semester room charges when the student registers. A room is not assured until notice from the Dean concerned is received. Room reservations not claimed by freshmen and upperclassmen on their respective registration days will be cancelled. A room will be held by special request until after classes begin providing the dormitory offices are notified by the first day of registration. Room reservation fees will not be refunded if the cancellation is received later than August 15 for the first semester.

2. Applications for rooms are acted upon only when a student has been fully admitted academically to the University.

3. All freshmen except those who live at home are required to room in the dormitories when accommodations are available.

4. Reservations by students in attendance at the University will be made during the last two weeks before the close of the spring semester. New students are urged to attend to their housing arrangements about three months in advance of registration. It is understood that all housing and board arrangements which are made for the Fall semester are binding for the Spring semester.

Room and board charges begin with the evening meal prior to the first day of registration and include the last day of classes for each semester, with the exception of the Christmas recess and the Easter recess. Students unable to make other arrangements for the holidays may consult the Dean of Men or the Dean of Women for assistance.

Equipment. Students assigned to the dormitories should provide themselves with sufficient single blankets, sheets, pillow cases, towels, a pillow, a laundry bag, a waste paper basket and a study lamp. The individual student assumes responsibility for all dormitory property assigned to him. Any damage

done to the property, other than that which results from ordinary wear and tear, will be charged to the student concerned. Where individual responsibility for damage cannot be ascertained, the amount of the damage will be prorated among the occupants of the room or the dormitory in which the damage occurred.

Each student will be furnished with a key for his room, for which a deposit of \$1.00 will be made. The deposit will be returned in exchange for the key at the end of the student's stay at the University dormitory.

Laundry. The University does not provide laundry service. Each student is responsible for his or her own laundry. There are several reliable laundry concerns in College Park, or if a student prefers, he may send his laundry home. It is also possible to make arrangements to rent towels and bed linens. Students may do laundry (not including bed linens) in the laundry rooms which are located in each dormitory.

Personal Baggage sent via the American Express and marked with the college housing address will be delivered when the student notifies the College Park Express Office of his arrival.

Off-Campus Housing

1. Men: Only upperclassmen and veterans are allowed to live in houses off the campus. A list of "off campus" rooms is available in the Office of the Dean of Men.

2. Women: All housing arrangements for undergraduate women students must be approved by the Office of the Dean of Women.

Estimated Expenses of "Off Campus" Residence

Most of the "off campus" houses have double rooms with twin beds and provide linens and towels. Some require the students to furnish their own bed linens. The price for a person in a double room is about \$25.00 a month.

Meals

1. All students who live in University dormitories must board at the University Dining Hall. Three meals are served daily and two on Sunday.

2. Other students may make arrangements to board by the semester at the Dining Hall, to eat at the University Cafeteria, or at eating establishments in College Park. A few "off campus" houses provide board as well as room.

3. No rebate is made for meals not eaten at the University Dining Hall or in other places where board is paid for in advance.

STUDENT LIFE AND WELFARE

RELIGIOUS INFLUENCES

The University recognizes its responsibility for the welfare of the students, not solely in their intellectual growth, but as human personalities whose development along all lines, including the moral and religious, is included in the edu-

cational process. Pastors representing the major denominational bodies assume responsibility for work with the students of their respective faiths and have offices in the University Chapel. The chapel, one of the most beautiful structures of its kind, is on the campus for the use of all faiths. Church attendance is encouraged.

A faculty committee on religious affairs and social service has as its principal function the stimulation of religious thought and activity on the campus. It brings noted speakers on religious subjects to the campus from time to time. The committee cooperates with the Student Religious Council and the student pastors and assists the student denominational clubs in every way that it can. Opportunities are provided for students to consult with pastors representing the denominations of their choice.

While there is no attempt to interfere with anyone's religious beliefs, the importance of religion is recognized officially and religious activities are encouraged.

Denominational Clubs. Several religious clubs have been organized among the students for their mutual benefit and for participation in certain types of service. This year the list includes the Baptist Student Union, the Canterbury Club (Episcopal), the Christian Science Club, the Friends' University Group, the Greek Orthodox Club, the Hillel Foundation (Jewish), the Lutheran Club, the Maryland Christian Fellowship, the Newman Club (Catholic), the Wesley Foundation (Methodist), and the Westminster Foundation (Presbyterian). These clubs meet regularly for worship and discussion, and occasionally for social purposes. A pastor or a member of the faculty serves as adviser.

COUNSELING AND GUIDANCE

Office of the Dean of Men. The Office of the Dean of Men exists for the purpose of furnishing friendly counsel and helpful guidance to male students in connection with any of their personal problems, especially those related to social adjustment, financial need, employment, housing, etc. This Office also handles for male students matters of discipline and infringement of University regulations.

Office of the Dean of Women. The Office of the Dean of Women exists to furnish friendly counsel and helpful guidance to women students in connection with their adjustment to college and with their personal problems. In addition, this Office coordinates women's activities, approves chaperones for social functions, regulates sorority rushing in cooperation with the Panhellenic Association, and advises the Women's Student Government Association. It has supervision over all housing accommodations for women students, whether on or off campus. A personal interview with one of the members of the staff is required of every woman student on entering and on leaving the University. All women students are invited to avail themselves of the services of this Office.

University Counseling Center. The University maintains a center where all students are encouraged to go for individual assistance on their vocational choices, personal problems, and educational progress. The University Counseling Center has a professionally qualified staff and has available an extensive

selection of diagnostic devices for the analysis of interests, abilities, aptitudes, and adjustment. By virtue of the payment of the annual Advisory and Testing Fee all students are entitled to the professional services of this center without further charge.

STUDENT HEALTH

The University recognizes its responsibility for safeguarding the health of its student body and takes every reasonable precaution toward this end. All new undergraduate students will be given a thorough physical examination at the time of their entrance into the University. A well-equipped infirmary is available for the care of sick or injured students. A small fee is charged undergraduate students for this infirmary service, but this fee does not include expensive drugs and special diagnostic procedures.

Infirmary Service

1. All undergraduate students may receive dispensary service and medical advice at the infirmary during office hours established by the physician in charge.

2. A registered nurse is on duty at all hours in the Infirmary for student care. Students are required to report illnesses during doctors' office hours unless the case is an emergency.

3. Undergraduate students not residing in their own homes may, upon order of the University physician, be admitted to the Infirmary and cared for to the extent of the facilities available. Students living off the campus will be charged a subsistence fee. In case of illness requiring a special nurse, consultations, expensive drugs, x-rays or special tests, the extra expense must be borne by the student.

4. Students living in dormitories, fraternity houses, sorority houses, or "off campus" houses who are too ill to go to the Infirmary must notify their house-mother, proctor or householder, who in turn will notify the Infirmary. In all cases except emergencies, the physician in charge must be notified during office hours.

5. When a student is admitted to the Infirmary and the illness is of a serious nature, parents will be promptly informed of the admission and of the progress of the student's condition. Visiting hours are 10 A. M. to 11 A. M. and 7 P. M. to 7:30 P. M. daily. Each patient is allowed only three visitors at one time. No visitor may see any patient until permission is granted by the doctor or nurse in charge.

6. Hospitalization is not available at the Infirmary for faculty, graduate students, or employees. Emergency dispensary service, however, is available for faculty, graduate students, and employees who are injured in University service or University activities.

Public Health. All dormitories, "off campus" houses, sorority, and fraternity houses are inspected periodically by the Student Health Service to insure that proper sanitary conditions are maintained and that kitchens meet the prescribed standards for cleanliness and sanitation. All food handlers will be examined in accordance with directives issued by the Student Health Service.

ATHLETICS AND RECREATION

The University recognizes the importance of the physical development of all students and, in addition to the required physical education for freshmen and sophomores, sponsors a comprehensive intercollegiate and intramural program. Students are encouraged to participate in competitive athletics and to learn the skill of games that may be carried on after leaving college. The intramural program, which covers a large variety of sports, is conducted by the Physical Education Department for both men and women.

The Council on Intercollegiate athletics sponsors and supervises a full program of intercollegiate athletics in every form necessary to meet the needs of the student body. By keeping this program in proper bounds, it becomes an incidental feature of University life. Each student is encouraged to participate in the program, either as an athlete or as a spectator. A strong intercollegiate program creates the incentives for extensive participation in the intramural program and, further, the program furnishes a rallying point of common interest for students, alumni, and faculty.

The University is a member of the Atlantic Coast Conference, the National Collegiate Athletic Association, the United States Intercollegiate Lacrosse Association, the Intercollegiate Amateur Athletic Association of America, and cooperates with other national organizations in the promotion of amateur athletics.

The University has an Activities Building which contains a modern gymnasium, a swimming pool, training facilities for indoor sports, physical education laboratories, and an arena; a large armory; a modern stadium with a running track; a number of athletic fields; tennis courts; baseball diamonds; and a gymnasium and swimming pool for women.

EXTRA-CURRICULAR STUDENT ACTIVITIES

The following description of student activities covers those of the undergraduate divisions at College Park. The catalogs of the Baltimore Schools also include descriptions of student activities.

Regulation of Student Activities. The association of students in organized bodies for the purpose of carrying on voluntary student activities in orderly and productive ways is recognized and encouraged. All organized student activities are under the supervision of the Student Life Committee. Such organizations are formed only with the consent of the Student Life Committee and the approval of the President. Without such consent and approval no student organization which in any way represents the University before the public, or which purports to be a University organization or an organization of University students, may use the name of the University in connection with its own name, or in connection with its members as students.

Student Government.

The Student Government Association consists of all the students and is the instrument for student government. It operates under an approved constitution

and bylaws. Its officers are the president, vice president, secretary, and treasurer.

Executive Council

The Executive Council is the over-all student governing body which performs the executive duties incident to managing student affairs and works in cooperation with the Student Life Committee. It consists of seventeen student members representing the various phases of University life.

Associated Women Students

The Associated Women Students, in cooperation with the Office of the Dean of Women, handles all matters pertaining to women students.

Men's League

The Men's League, in cooperation with the Office of the Dean of Men, handles matters pertaining to men students.

Student Life Committee

The Student Life Committee, a faculty committee, keeps in close touch with all conditions and activities, excepting classroom work, that affect the student and, acting in an advisory capacity, endeavors to improve any unsatisfactory conditions that may exist.

Two pamphlets, *Academic Regulations*, and *General Regulations*, issued annually and distributed to the students in the fall, contain full information concerning student matters as well as a statement of the rules of the University.

Eligibility to Represent the University. Only students in good standing are eligible to represent the University in extra-curricular activities. In addition, various student organizations have established certain other requirements. To compete in varsity athletics a student must pass the required number of hours as determined by the Athletic Council.

Discipline. In the government of the University, the President and faculty rely chiefly upon the sense of responsibility of the students. The student who pursues his studies diligently, attends classes regularly, lives honorably, and maintains good behavior meets this responsibility. In the interest of the general welfare of the University, those who fail to maintain these standards are asked to withdraw. Students are under the direct supervision of the University only when on the campus or attending an approved function representing the University. They are responsible to the University for their conduct wherever they may be.

FRATERNITIES, SORORITIES, CLUBS, AND SOCIETIES

Honorary Fraternities, Sororities, and Societies. Honorary fraternities, sororities, and societies in the University are organized to uphold scholastic and cultural standards. Those which stress scholastic and general achievement are Alpha Lambda Delta, national freshman women's scholastic society requiring a 3.5 average; Mortar Board, national senior women's society, recognizing service,

leadership, and scholarship; Omicron Delta Kappa, national men's society, recognizing conspicuous attainment in non-curricular activities and general leadership; Phi Eta Sigma, national freshman men's society; Phi Kappa Phi, national fraternity for honor students, both men and women, in all branches of learning; and Sigma Xi, scientific fraternity.

National honorary and professional fraternities which recognize achievement in special endeavor are Alpha Chi Sigma, men's chemistry; Alpha Kappa Delta, men's sociology; Alpha Zeta, men's agricultural; Beta Alpha Psi, men's accounting; Beta Gamma Sigma, commerce; Delta Sigma Pi, commerce; Gamma Beta, student band; Iota Lambda Sigma, men's industrial education; Kappa Kappa Psi, student band; National Collegiate Players, dramatics; Omicron Nu, women's home economics; Phi Alpha Epsilon, physical education; Phi Alpha Theta, history; Phi Chi Theta, women's commerce; Phi Delta Kappa, men's education; Pi Alpha Xi, horticulture; Pi Delta Epsilon, journalism; Pi Sigma Alpha, political science; Psi Chi, psychology; Sigma Eta, speech and hearing therapy; Sigma Alpha Omicron, bacteriology; Sigma Pi Alpha, physics; Sigma Tau Epsilon, women's physical education; and Tau Beta Phi, general engineering.

Other honorary societies are the Arnold Air Society, Air Force R.O.T.C.; Pershing Rifles, men's military; Scabbard and Blade, men's military; Vandenberg Guard, Air Force society for basic cadets; and the Varsity M Club, an honorary athletic organization.

Social Fraternities and Sororities. There are twenty-four national fraternities and sixteen national sororities at College Park. These in the order of their establishment at the University are Kappa Alpha, Sigma Nu, Phi Sigma Kappa, Delta Sigma Phi, Alpha Gamma Rho, Theta Chi, Phi Alpha, Tau Epsilon Phi, Alpha Tau Omega, Phi Delta Theta, Lambda Chi Alpha, Sigma Alpha Mu, Alpha Epsilon Pi, Phi Kappa Sigma, Sigma Chi, Sigma Alpha Epsilon, Tau Kappa Epsilon, Zeta Beta Tau, Delta Tau Delta, Sigma Pi, Sigma Phi Epsilon, Phi Kappa Tau, Delta Kappa Epsilon and Pi Kappa Alpha, national fraternities; Alpha Omicron Pi, Kappa Kappa Gamma, Kappa Delta, Delta Delta Delta, Alpha Xi Delta, Phi Sigma Sigma, Alpha Delta Pi, Sigma Kappa, Gamma Phi Beta, Alpha Epsilon Phi, Pi Beta Phi, Delta Gamma, Kappa Alpha Theta, Alpha Gamma Delta, Alpha Chi Omega, and Sigma Delta Tau, national sororities.

Clubs and Societies. Many clubs and societies, with literary, art, cultural, scientific, social, and other special objectives are maintained in the University. Some of these are purely student organizations; others are conducted jointly by students and members of the faculty. The list follows:

Civic and Service Organizations. Alpha Phi Omega, national service fraternity; Daydodgers' Club; Diamond Club, a sorority service organization; Graduate Club; Independent Students' Association; Interfraternity Council; Interfraternity Pledge Council; Junior Panhellenic Council; Latch Key Club; Mr. and Mrs. Club; Panhellenic Council; and the Student Unit of the American Red Cross.

Subject Matter Organizations. Accounting Club, Agricultural Council, Agricultural Economics Club, American Institute of Chemical Engineers, American Institute of Electrical Engineers and Institute of Radio Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Childhood Education Club, Chinese Students' Club, Collegiate 4-H Club, Dairy Science Club, Economics Seminar Club, Engineering Council, French Club, Future Farmers of America, Future Teachers of America, German Club, Home Economics Club, Industrial Education Club, Institute of Aeronautical Sciences, Institute of Food Technology, International Club, International Relations Club, Islamic Club, Louisa Parsons Nursing Club, Marketing Club, Maryland Poultry Science Club, Mathematics Club, Music Educators' Club, Philosophy Club, Physics Journal Club, Plant Industry Club, Propellor Club, Radio and TV Guild, Society for the Advancement of Management, Sociology Club, Spanish Club, Student Affiliate of the American Chemical Society, Veterans' Club, Veterinary Science Club, and Women's Recreation Association.

Recreational Organizations: Aqualiners' Club, Art Club, Astronomy Club, Ballroom Dance Club (instructional group), Block and Bridle Club, Calvert Debating Society, Campus Conjurors, Chapel Choir, Chess Club, Clef and Key, Driver Training Club, Gymkana Club, Judo Club, Maryland Flying Association, Men's Glee Club, Model Airplane Club, Radio Club, Riding Club, Rossborough Club (large campus dances), Sailing Club, Ski Club, Terrapin Trail Club, University Orchestra, University Theatre, WMUC Radio Station, Weightlifting Club, and the Women's Chorus.

Fraternities and sororities, as well as all other clubs and organizations recognized by the University, are expected to conduct their social and financial activities in accordance with the rules of good conduct and upon sound business principles. Where such rules and principles are observed, individual members will profit by the experience of the whole group and thereby become better fitted for their life's work after graduation. Rules governing the different activities will be found in the pamphlet *General University Regulations*.

UNIVERSITY AND A. F. R. O. T. C. BANDS

The University of Maryland Student Band and the A.F.R.O.T.C. Band are two separate musical organizations at the University, existing for the purpose of furthering the musical knowledge of interested students. The A. F. R. O. T. C. Band functions under the College of Military Science. The Student Band is under the direction of the Music Department and is assisted by the Military Department. Students are not required to be members of the University of Maryland Band in order to be eligible for the Air Force R. O. T. C. Band. The instruction of both bands is conducted by an experienced bandmaster..

STUDENT PUBLICATIONS

Four student publications are conducted under the guidance of a faculty adviser and the general supervision of the Student Publications Board. The *Diamondback*, a newspaper, summarizes the University news and provides a

medium for the discussion of matters of interest to the students and the faculty. The *Terrapin*, the yearbook, is a reflection of campus activities, serving to commemorate the principal events of the college year. The *Old Line* is a magazine of literature, humor, and art, published periodically. The *M Book* is a handbook for incoming students and is designed to acquaint them with University life.

STUDENTS' SUPPLY STORE

For the convenience of students, the University maintains a Students' Supply Store, located in the basement of the Student Union Building, where students may obtain at reasonable prices textbooks, classroom materials and equipment. The store also carries jewelry, stationery, fountain pens and novelty items. This store is operated on a basis of furnishing students needed books and supplies at as low a cost as practicable, and profits, if any, are turned into the general University treasury to be used for promoting general student welfare. Because of heavy demand for textbooks at the beginning of each semester, the student should purchase required textbooks during registration week.

UNIVERSITY POST OFFICE

The University operates an office for the reception, dispatch, and delivery of United States mail, including Parcel Post packages, and for inter-office communications. This office is located in the basement of the STUDENT UNION BUILDING. The campus post office is NOT A PART OF THE UNITED STATES POSTAL SYSTEM and no facilities are available for sending or receiving postal money orders. Postage stamps, however, may be purchased. United States mail is received at 8:30 A. M. and 2 P. M. and dispatched at 11:15 A. M. and 4:00 P. M. daily, except that on Saturdays, mail is dispatched at 11:15 A. M. only.

Each student in the University is assigned a Post Office box at the time of registration, for which a small fee is charged. Also, boxes are provided for the various University offices. Students may have access to their Post Office boxes from 7:30 A. M. until 9 P. M. One of the major reasons for the operation of the Post Office is to provide a convenient method by which Deans, teachers and University officials may communicate with students. Students are therefore expected to call for their mail daily, if possible, in order that such communications may come to their attention promptly.

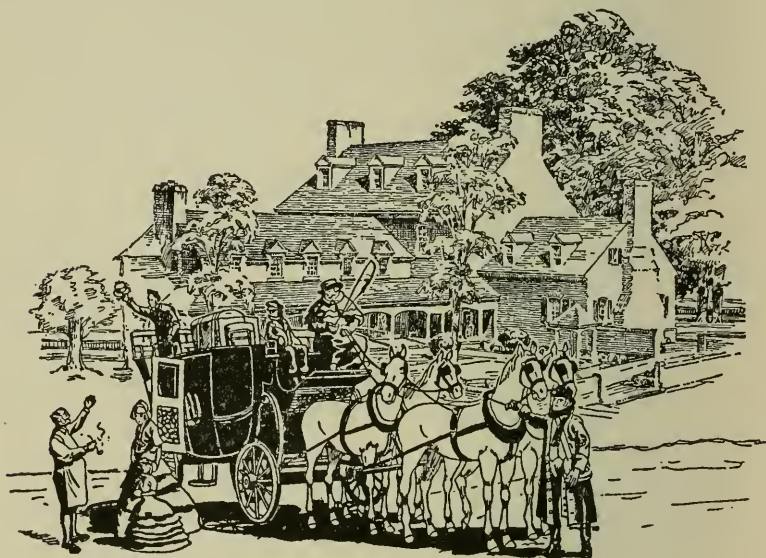
ALUMNI

The Alumni Council, composed of representatives from the Schools and Colleges of the University—one from the M Club and one from each area Alumni Club—coordinates all general alumni interests and activities. The Council membership includes three representatives from each of the organized alumni associations for the Schools and Colleges of Agriculture, Arts and Sciences, Business and Public Administration, Dentistry, Education, Engineering, Home Economics, Law, Medicine, Nursing and Pharmacy.

Council activities include the alumni publication, *Maryland*; a scholarship program; and an annual Homecoming at College Park. Membership in the

University of Maryland Alumni Association is automatic through affiliation with one of the School and College organizations. Each School and College Alumni Association exerts an active interest in the welfare of its respective graduates and of the University. Objectives of the general Association include the promotion of the interests and welfare of the University and efforts to further mutually beneficial relations between the University, the people of Maryland, and the alumni.

Maryland, a bi-monthly magazine issued by the Alumni Association, publishes articles of general interest, feature articles written by faculty members and alumni, campus news, and sports news.



ROSSBOROUGH INN

Erected in 1798, the oldest building on the Campus. Lafayette, Washington, and practically all colonial leaders stopped here. This was the first stop on the Old Post Road, Alexandria to Philadelphia, New York and Boston and, later, from Washington to Baltimore.

Rossborough was the first building on the campus of the second agricultural college in the Western Hemisphere, established in 1856, and was the home of the first Agricultural Experiment Station to be established in the United States in 1888. When the old building was remodeled in 1938, huge white letters painted on the ends of the building proclaimed it as the "Maryland Agricultural Experiment Station."

"My Son John Went Out to Ross's to Meet General Lafayette," wrote John Quincy Adams, President of the United States.

College of AGRICULTURE

STAFF

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B.S., University of Maryland, 1943; M.S., 1947; Ph.D., 1953.
- CONRAD B. LINK, Professor of Floriculture
B.S., Ohio State University, 1933; M.S., 1934; Ph.D., 1940.
- JOHN E. MAHONEY, Extension Assistant Professor in Marketing
B.S., University of Vermont, 1935.
- FLOYD V. MATTHEWS, JR., Assistant Professor of Agricultural Engineering
B.S., Virginia Polytechnic Institute, 1950; M.S., Oklahoma A. & M., 1951.
- WILLIAM A. MATTHEWS, Associate Professor in Vegetable Crops
B.S., Virginia Polytechnic Institute, 1928; M.S., University of Maryland, 1930.
- JOSEPH F. MATTICK, Associate Professor of Dairy Manufacturing
B.S., Pennsylvania State College, 1942; Ph.D., 1950.
- HAROLD S. MCCONNELL, Research Associate Professor of Entomology
B.S., Clemson Agricultural College, 1916; M.S., University of Maryland, 1931.
- JOHN A. MEADE, Instructor in Agronomy
B.S., University of Maryland, 1953.
- CHARLES P. MERRICK, Extension Associate Professor of Agricultural Engineering
B.S., University of Maryland, 1933.
- AMOS R. MEYER, Extension Associate Professor of Marketing
B.S., Ohio State University, 1940.

- JEANNE S. MOEHN (Mrs.), Extension Associate Professor and Family Life Specialist
B.S., Iowa State College, 1940.
- DELBERT T. MORGAN, Associate Professor of Botany
B.S., Kent State University, 1940; M.A., Columbia University, 1942; Ph.D., 1948.
- OMAR D. MORGAN, JR., Assistant Professor of Plant Pathology
B. Ed., Illinois State Normal University, 1940; Ph.D., University of Illinois, 1950.
- JOHN L. MORRIS, Extension Associate Professor of Dairy Husbandry
B.S., Iowa State College, 1943.
- SAM C. MUNSON, Lecturer in Entomology
B.S., Mississippi State College, 1930; M.S., 1931; Ph.D., University of Maryland, 1952.
- RAY A. MURRAY, Associate Professor of Agricultural Economics and Marketing
B.S., University of Nebraska, 1934; M.A., Cornell University, 1938; Ph.D., 1949.
- JOSEPH L. NEWCOMER, Extension Assistant Professor—Seed Programs
B.S., University of Maryland, 1950; M.S., 1955.
- JAMES L. NICHOLSON, Extension Assistant Professor, Poultry Husbandry
BS., University of Maryland, 1951.
- GILBERT J. PLUMER, Associate Professor of Veterinary Science, Live Stock Laboratory
B.S., University of Maryland, 1949; D.V.M., New York State Veterinary College, Cornell University, 1953.
- LEO J. POELMA, Professor of Animal Pathology
M.S., University of Maryland, 1928; D.V.M., Kansas City Veterinary College, 1916.
- PAUL R. POFFENBERGER, Professor and Acting Head of Agricultural Economics and Marketing
B.S., University of Maryland, 1935; M.S., 1937; Ph.D., American University, 1953.
- GEORGE D. QUIGLEY, Associate Professor of Poultry Husbandry
B.S., Michigan State College, 1925.
- ROBERT D. RAPPLEYE, Assistant Professor of Botany
B.S., University of Maryland, 1941; M.S., 1947; Ph.D., 1949.
- REGINALD L. REAGAN, Professor of Veterinary Virology
Major, U. S. Army, Retired.
- BURNELL K. REBERT, Extension Instructor, Marketing
B.S., Elizabethtown College, 1947.
- JOANNE W. REITZ, Extension Assistant Professor and Home Management Specialist
B.S., Indiana State Teachers College, 1946; M.S., Pennsylvania State University, 1952.
- CHARLES W. REYNOLDS, Assistant Professor of Vegetable Crops
B.A., University of Alabama, 1941; B.S., Alabama Polytechnic Institute, 1947; M.S., 1949; Ph.D., University of Maryland, 1954.
- WADE H. RICE, Extension Associate Professor of Poultry Husbandry
B.S., North Carolina State College, 1921.
- BENJAMIN L. ROGERS, Extension Assistant Professor of Pomology
B.S., Clemson College, 1943; M.S., University of Minnesota, 1947; Ph.D., University of Maryland, 1950.
- WAYNE C. ROHRER, Assistant Professor of Rural Sociology
B.S., Texas A. & M., 1946; M.S., 1948; Ph.D., Michigan State University, 1955.

- GEORGE L. ROMOSER, Assistant Professor of Poultry Husbandry
B.S., University of Maryland, 1950; M.S., 1951; Ph.D., 1953.
- THOMAS S. RONNINGEN, Associate Professor of Agronomy
B.S., Wisconsin State Teachers College, 1939; M.S., University of Wisconsin, 1947;
Ph.D., 1949.
- RUSSELL G. ROTHGEB, Professor in Agronomy
B.S., University of Maryland, 1924; M.S., Iowa State College, 1925; Ph.D., University of Maryland, 1928.
- JOHN M. RYAN, Associate Professor and Agricultural Editor
B.S., South Dakota State College, 1938.
- REESE I. SAILER, Lecturer in Entomology
A.B., University of Kansas, 1938; Ph.D., 1942.
- PAUL W. SANTELMANN, Assistant Professor in Crops
B.S., University of Maryland, 1950; M.S., Michigan State College, 1952; Ph.D., Ohio State University, 1954.
- JOHN R. SCHABINGER, Extension Assistant Professor of Dairy Husbandry
B.S., University of Delaware, 1943; M.S., Pennsylvania State, 1947.
- LELAND E. SCOTT, Professor of Horticultural Physiology
B.S., University of Kentucky, 1927; M.S., Michigan State College, 1929; Ph.D., University of Maryland, 1943.
- CLYNE S. SHAFFNER, Professor and Head of Poultry Husbandry
B.S., Michigan State College, 1938; M.S., 1940; Ph.D., Purdue University, 1947.
- JAMES B. SHANKS, Associate Professor of Floriculture
B.S., Ohio State University, 1939; M.S., 1946; Ph.D., 1949.
- JOSEPH C. SHAW, Professor of Dairy Husbandry
B.S., Iowa State College, 1930; M.S., University of Montana, 1932; Ph.D., University of Minnesota, 1938.
- HAROLD H. SHEPARD, Lecturer in Entomology
B.S., Massachusetts State College, 1924; M.S., University of Maryland, 1927;
Ph.D., Massachusetts State College, 1931.
- MARK M. SHOEMAKER, Associate Professor of Landscape Gardening
B.A., University of Michigan, 1921; M.L.D., 1922.
- MARY S. SHORB, Research Professor, Nutrition
B.S., College of Idaho, 1928; Sc.D., Johns Hopkins University, 1933.
- STANLEY C. SHULL, Associate Professor of Agricultural Economics and Marketing
B.A., Bridgewater College, 1941; M.A., University of Virginia, 1941; Ph.D., Cornell University, 1951.
- HUGH D. SISLER, Assistant Professor in Plant Pathology
B.S., University of Maryland, 1949, M.S., 1951, Ph.D., 1953.
- HAROLD D. SMITH, Assistant Professor of Agricultural Economics and Marketing
B.A., Bridgewater College, 1943; M.S., University of Maryland, 1947; Ph.D., American University, 1952.
- ROBERT J. SNYDER, Assistant Professor, Vegetable Crops.
B.S., Pennsylvania State College, 1949; M.S., 1951; Ph.D., Pennsylvania State University, 1955.
- JAMES R. SPERRY, Associate Professor of Veterinary Science
D.V.M., Ohio State University, 1915.
- FRANCIS C. STARK, Professor of Vegetable Crops
B.S., Oklahoma A. & M. 1940; M.S., University of Maryland, 1941; Ph.D., 1948.

- GEORGE A. STEVENS, Extension Instructor of Agricultural Economics and Marketing
B.S., Virginia Polytechnic Institute, 1941; M.S., 1949.
- ORMAN E. STREET, Professor of Agronomy
B.S., South Dakota State College, 1924; M.S., Michigan State College, 1926;
Ph.D., 1933.
- EDWARD STRICKLING, Assistant Professor of Soils
B.S., Ohio State University, 1937; Ph.D., 1949.
- ARTHUR H. THOMPSON, Professor of Pomology
B.S., University of Minnesota, 1944; Ph.D., University of Maryland, 1945.
- HERMAN S. TODD, Instructor in Horticulture
B.S., Ohio State University, 1937.
- BERNARD A. TWIGG, Extension Instructor, Processing
B.S., University of Maryland, 1952; M.S., 1955.
- PERRY F. TWINING, Extension Associate Professor of Poultry
B.S., University of Maryland, 1949.
- ALBERT F. VIERHELLER, Extension Professor of Horticulture
B.S., West Virginia University, 1918; M.S., University of Maryland, 1923.
- WILLIAM P. WALKER, Professor of Agricultural Economics and Marketing
B.S., University of Maryland, 1921; M.S., 1924.
- MARDIS R. WARNER, Extension Assistant Professor of Agricultural Engineering
B.S., Ohio State University; 1950; B.S.A.E., 1950.
- EDWIN J. WEATHERBY, Extension Associate Professor of Dairy Husbandry
B.S., Cornell University, 1938; M.S., University of Vermont, 1940; Ph.D., Rutgers
University, 1942.
- LESLIE O. WEAVER, Extension Professor of Plant Pathology
B.S.A., Ontario Agricultural College, 1934; Ph.D., Cornell University, 1943.
- BOYD T. WHITTLE, Extension Associate Professor, Animal Husbandry
B.S., Idaho University, 1947; M.S., Illinois University, 1948.
- FRANK H. WILCOX, Assistant Professor of Poultry Husbandry
B.S., University of Connecticut, 1951; M.S., Cornell University, 1953; Ph.D., 1955.
- ROBERT C. WILEY, Assistant Professor of Horticulture Processing
B.S., University of Maryland, 1949; M.S., 1950; Ph.D., Oregon State College, 1953.
- HOWARD B. WINANT, Assistant Professor of Soils
B.S., Maryland Agricultural College, 1917; M.S., University of Maryland, 1924.
- FRANCIS C. WINGERT, Assistant Professor of Animal Husbandry
B.S., University of Minnesota, 1945; Ph.D., University of Minnesota, 1955.
- PAUL N. WINN, Research Assistant Professor of Agricultural Engineering
B.S., Virginia Polytechnic Institute, 1947.

*SUPERVISING TEACHERS IN AGRICULTURE

- AHALT, LOUIS F., B.S., 1940, M.S., 1952, University of Maryland.
Middletown High School, Middletown, Maryland.

*Teachers of Vocational Agriculture who supervise student teachers during the practice teaching period in cooperation with the Department of Agricultural Education.

- BIGGS, W. HARLAN, B.S., University of Maryland, Vocational Center.
Hagerstown High School, Hagerstown, Maryland.
- CARLTON, JEAN F., B.S., 1948, M.S., 1952, University of Maryland.
Arundel High School, Gambrills, Maryland.
- MCDONALD LEIB, B.S., 1943, M.Ed., 1951, University of Maryland.
Hereford High School, Parkton, Maryland.
- SMITH, WARREN C., B.S., 1943, M.S. 1952, University of Maryland.
Frederick High School, Frederick, Maryland.
- SULTENFUSS, VERNON B., B.S., 1947, University of Maryland.
Centreville High School, Centreville, Maryland.
- WARD, MAURICE C., B.S., 1942, M.S., 1952, University of Maryland.
Poolesville High School, Poolesville, Maryland.

COLLEGE OF AGRICULTURE

Gordon M. Cairns, Ph.D., Dean

THE College of Agriculture offers both general and specialized training for students who wish to prepare for professional work in the broad field of agricultural endeavor. The students receive basic fundamental and cultural education, correlated with technical agricultural courses and the related sciences. In addition the college aims to train the students in a way that enables them to take responsible positions in agricultural and allied industries. Students come from both rural and urban areas. Farm-reared students enter either general or specialized curricula; non-farm reared students tend to follow the specialized programs.

History

The College of Agriculture is the oldest division of the University of Maryland at College Park. The institution was chartered in 1856 under the name of the Maryland Agricultural College. For three years the College was under private management. When Congress passed the Land Grant Act in 1862, the General Assembly of Maryland accepted it for the State and named the Maryland Agricultural College as the beneficiary. When the institution was merged in 1920 with the University of Maryland in Baltimore, the College of Agriculture took its place as one of the major divisions of this larger, more comprehensive organization.

In addition to teaching, the College of Agriculture includes the Agricultural Experiment Station and the Extension Service. They were established as the result of acts passed by Congress in 1887 and 1914 respectively. A more complete description of these two services appears later in this bulletin.

General

The College provides curricula for those who wish to engage in general farming, livestock production, dairying, poultry husbandry, fruit or vegetable growing, floriculture or ornamental horticulture, field crop production, or in the highly specialized scientific activities connected with these industries. It prepares men to serve as farm managers, for positions with commercial concerns related to agriculture, for responsible positions in departments of vocational agriculture in high schools or as investigators in experiment stations, for extension work, for regulatory activities, and for service in the United States Department of Agriculture.

Through research the frontiers of knowledge relating to agriculture and the fundamental sciences underlying it are constantly being extended and solutions for important problems are being found. Research projects in many fields are in progress. Students taking courses in agriculture from instructors who devote part time to research, or are closely associated with it, are kept

in close touch with the latest discoveries and developments in the investigations under way. The findings of these research scientists provide valuable information for use in classrooms, and make instruction virile and authentic. The results of the most scientific investigations are constantly before the student.

Close contact of workers in the College with the problems of farmers and their families in all parts of the State, through the county agents, home demonstration agents, and specialists brings additional life to resident instruction in the College of Agriculture. These contacts operate in two ways: problems confronting rural people are brought to the attention of research workers and the instructional staff, and results of research are taken to farmers and their families in their home communities through practical demonstrations. Hence the problems of the people of the State contribute to the strength of the College of Agriculture, and the College helps them in the improvement of agriculture and rural life.

Through their regulatory functions, certain trained workers in the College of Agriculture are continually dealing with the actual problems associated with the improvement and maintenance of the standards of farm products and animals. Regulatory and control work extends over a wide range of activities and is concerned with reducing the losses due to insect pests and diseases; preventing and controlling serious outbreaks of diseases and pests of animals and plants; analyzing fertilizer, feed, and lime for guaranteed quality; and analyzing and testing germination quality of seeds to insure better seeds for farm planting.

These fields contribute largely to agricultural education, as standardization and education go hand in hand in the development of an industry. Direct contact on the part of professors in their respective departments with the problems and methods involved makes for effective instruction.

Special Advantages

The University of Maryland is within a few miles of the Agricultural Research Center of the U. S. Department of Agriculture. This is the largest, best manned, and best equipped agriculture research agency in the world. Also, the University of Maryland, is within a few miles of the Washington D. C., offices of the U. S. Department of Agriculture and other government departments, including the Library of Congress. Students can easily visit these agencies and become acquainted with their work and the men who conduct this work. Such contacts have already proved valuable to many University of Maryland graduates.

Also, it is not uncommon for men from these agencies to speak before classes at the University and to be guest speakers at student club meetings and otherwise take part in student activities. No other college of agriculture in the United States is physically located to offer like opportunities to its students.

Coordination of Agricultural Work

The strength of the College of Agriculture of the University of Maryland lies in the close coordination of the instructional, research, extension, and regulatory functions within the individual departments, between the several departments, and in the institution as a whole. Instructors in the several departments

are closely associated with the research, extension and regulatory work being carried on in their respective fields, and in many cases, devote a portion of their time to one or more of these types of activities. Close coordination of these four types of work enables the University to provide a stronger faculty in the College of Agriculture, and affords a higher degree of specialization than would otherwise be possible. It insures instructors an opportunity to keep informed on the latest results of research, and to be constantly in touch with current trends and problems which are revealed in extension and regulatory activities. Heads of departments hold staff conferences to this end, so that the student at all times is as close to the developments in the frontiers of the several fields of knowledge as it is possible for an organization to put him.

In order that the work of the College shall be responsive to agricultural interests and shall adequately meet the needs of the several agricultural industries in the State, and that the course of instruction shall at all times be made most helpful for students who pursue them, Advisory Councils have been constituted in the major industries of agriculture. The Councils are composed of leaders in the respective lines of agriculture in Maryland, and the instructional staff of the College of Agriculture has the benefit of their counsel and advice. By this means the College, the industries, and the students are kept abreast of developments.

Facilities and Equipment

In addition to buildings, laboratories, libraries, and equipment for effective instruction in the related basic sciences and in the cultural subjects, the University of Maryland is provided with excellent facilities for research and instruction in agriculture. University farms, totaling more than 1,200 acres, are operated for instructional and investigational purposes. One of the most complete and modern plants for dairy and animal husbandry work in the country, together with herds of the principal breeds of dairy and beef cattle, and other livestock, provides facilities and materials for instruction and research in these industries. Excellent laboratory and field facilities are available in the Agronomy Department for breeding and selection in farm crops, and for soils research. The Poultry Department has a building for laboratories and classrooms, a plant comprising twenty acres, and flocks of the important breeds of poultry. The Horticulture Department is housed in a separate building, and has ample orchards and gardens for its various lines of work.

Departments and Curricula

Departments in the College of Agriculture and their curricula are as follows: Agricultural Economics and Marketing; Agricultural Education and Rural Life; Agricultural Engineering; Agronomy (including crops and soils); Animal Husbandry; Botany (including plant morphology and taxonomy, plant pathology, and plant physiology and ecology); Dairy (including dairy husbandry and dairy products technology); Entomology (including bee culture); Horticulture (including pomology, olericulture, floriculture, ornamental horticulture and commercial processing); Poultry Husbandry; Veterinary Science. In addition, there are curricula in Agricultural Chemistry and General Agriculture. Courses of study may also be arranged for any who desire to return to the farm after one or more years of training in practical agricultural subjects.

Admission

All students desiring to enroll in the College of Agriculture must apply to the Director of Admissions of the University of Maryland at College Park.

In selecting students more emphasis will be placed upon good marks and other indications of probable success in college rather than upon a fixed pattern of subject matter. In general, 4 units of English and 1 unit each of Social, Biological and Natural Sciences are required. One unit each of Algebra and Plane Geometry are necessary for certain curricula and desirable for all. While Foreign Language is desirable for certain programs, no Foreign Language is required for entrance. Fine Arts, Trade and Vocational subjects are acceptable as electives.

General Information

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denominational clubs, fraternities, sororities, societies and special clubs, the University Band, student publications, University Post Office and Supply Store, write to the Director of Publications for the General Information Issue of the Catalog.

Costs

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140.00 to \$170.00 lodging for Maryland residents, or \$180.00 to \$220.00 for residents of other States and Countries; and laboratory fees which vary with the laboratory courses pursued. A matriculation fee of \$10.00 is charged all new students. A charge of \$250.00 is assessed to all students who are non-residents of the State of Maryland.

For a more detailed statement of these costs, write to the Director of Publications for the Catalog of General Information.

Military Instruction

All male students unless specifically exempted under University rules are required to take basic Air Force R. O. T. C. training for a period of two years. The successful completion of this course is a prerequisite for graduation, but it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

Selected students who wish to do so may carry advanced Air Force R. O. T. C. courses during their junior and senior years which lead to a regular or reserve commission in the United States Air Force.

Junior Requirements

A student must acquire a minimum of 56 credits exclusive of the requirements in basic military science, hygiene, and physical activities with an average grade of at least C in the freshman and sophomore years before being permitted to begin advanced work.

Requirements for Graduation

Each student must acquire a minimum of 124 semester hour credits in academic subjects other than basic military science and physical activities. Men must acquire in addition 12 hours in basic military science and 4 hours in physical activities. Women must acquire in addition 4 hours in hygiene, and 4 hours in physical activities.

Scholarships for Agricultural Students

A limited number of scholarships are available for agricultural students. These include scholarships granted by the Sears Roebuck Foundation, the Borden Company, the Danforth Foundation, the Ralston Purina Company, the Thoroughbred Breeders and J. McKenny Willis and Sons.

These scholarships are awarded by the Faculty Committee in accordance with the terms of the respective grants. More detailed information about these scholarships is contained in the General Information Catalog.

AWARDS

Grange Award

The Maryland State Grange makes an annual award to the senior who has excelled in leadership and scholastic attainment and has contributed meritorious service to the College of Agriculture.

Alpha Zeta Medal

The Honorary Agricultural Fraternity of Alpha Zeta awards annually a medal to the agricultural student in the freshman class who attains the highest average record in academic work. The mere presentation of the medal does not elect the student to the fraternity, but simply indicates recognition of high scholarship.

Student Organizations

Students find opportunity for varied expression and growth in the several voluntary organizations sponsored by the College of Agriculture. These organizations are: Agricultural Economics Club, Block and Bridle Club, Collegiate 4-H Club, Dairy Science Club, Student Institute of Food Technology, Future Farmers of America, Plant Industry Club, Riding Club, Student Grange, Poultry Science Club, and the Veterinary Science Club.

Membership in these organizations is voluntary and no college credits are given; yet much of the training obtained is fully as valuable as that acquired from regularly prescribed courses. All of these organizations have regular meetings, arrange special programs and contribute to the extra-curricular life of the students.

The Agricultural Economics Club is a forum for students and faculty in the field of Agricultural Economics. The Block and Bridle Club is composed of students interested in livestock; it conducts a Student Livestock Judging Contest in the fall and a Student Fitting and Showing Contest in the spring on the campus. The Collegiate 4-H Club is composed of former members and others interested in Agricultural Extension work.

The Dairy Science Club is composed of students and faculty in both dairy production and dairy manufacturing. Students in Horticulture majoring in

commercial processing band together with their faculty in a Student Institute of Food Technology. The Future Farmers of America foster an interest in Vocational Agriculture and the Collegiate Chapter serves as host to the high school chapters in the State at their judging contests held at the University. Students interested in Agronomy, Botany and Horticulture are brought together in meetings of the Plant Industry Club to consider important phases of plant science and industry as well as for social activity.

The Poultry Science Club is composed of students and faculty in Poultry Husbandry. Students who enjoy horseback riding are brought together in the Riding Club; this organization sponsors an annual Horse Show in cooperation with other riding enthusiasts in the vicinity of the University. The Student Grange represents the great national farmers' fraternity of the Order of Patrons of Husbandry and emphasizes training for rural leadership. Students preparing for careers as veterinarians have formed the Veterinary Science Club.

In addition to the above organizations, Alpha Zeta and the Agricultural Student Council are student organizations to which membership is by election. Membership in Alpha Zeta, national agricultural honor fraternity, is chosen from students in the College of Agriculture who have met certain scholastic requirements and displayed leadership in agriculture.

The Agricultural Student Council is made up of representatives from the various student organizations in the College of Agriculture. Its purpose is to coordinate activities of these organizations and to promote work which is beneficial to the College.

Student Judging Teams

The College of Agriculture sponsors judging teams for dairy cattle, dairy products, horticultural products, livestock, meats and poultry. Team members are selected from students taking courses designed especially to train them for this purpose. Teams are entered in major contests where the students compete with teams from other state universities or agricultural colleges.

Student Advisers

Each student in the College of Agriculture is assigned to a faculty adviser, either departmental or general. Departmental advisers consist of heads of departments or persons selected by them to advise students with curricula in their respective departments. General advisers are selected for students who have no definite choice of curriculum in mind, or who wish to pursue the general curriculum in agriculture.

Electives

The electives in the suggested curricula which follow affords opportunity for those who so desire to supplement major and minor fields of study or to add to their general training.

With the advice and consent of those in charge of his registration, a student may make such modifications in his curriculum as are deemed advisable to meet the requirements of his particular need.

Farm and Laboratory Practice

The head of each department will help to make available opportunities for

practical or technical experience along his major line of study for each student whose major is in that department and who is in need of such experience. For inexperienced students in many departments this need may be met by one or more summers spent on a farm.

Freshman Year

The program of the freshman year in the College of Agriculture is the same for all curricula of the College. Its purpose is to afford the student an opportunity to lay a broad foundation in subjects basic to agriculture and the related sciences, to articulate beginning work in college with that pursued in high or preparatory schools, to provide opportunity for wise choice of programs in succeeding years, and to make it possible for a student before the end of the year to change from one curriculum to another, or from the College of Agriculture to the curriculum in some other college of the University with little or no loss of credit.

Students entering the freshman year with a definite choice of curriculum in mind are sent to departmental advisers for counsel as to the wisest selection of freshmen electives from the standpoint of their special interests and their probable future programs. Students entering the freshman year with no definite curriculum in mind, are assigned to a general adviser, who assists with the choice of freshman electives and during the course of the year acquaints the students with the opportunities in the upper curricula in the College of Agriculture and in the other divisions of the University. If by the close of the freshman year a student makes no definite choice of a specialized curriculum, he continues under the guidance of his general adviser in the General Agriculture Curriculum.

Agriculture Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and Readings in American Literature....	3	3
G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Hea. 2, 4—Hygiene (Women).....	2	2
R. Ed. 1—Introduction to Agriculture.....	1	....
**Math. 0—Basic Mathematics.....	....	0
*Elect either of the following pairs of courses:		
Bot. 1, General Botany and Zool. 1, General Zoology.....	4	4
Chem. 1, 3, General Chemistry.....	4	4
Elect one of the following each semester:		
Modern Language.....	3	3
†Math 5, 6 or 10, 11, or 10, 13.....	3	3
Physics, 1, 2—Elements of Physics.....	3	3
A. H. 1—Fundamentals of Animal Husbandry.....	3	....
Agron. 1—Crop Production.....	....	3
***Dairy 1—Fundamentals of Dairying.....	....	3

**An examination in Mathematics will be given at an announced date during the first semester; students passing this test will not be required to take Math. 0.

*Both pairs of courses are required for graduation from the College of Agriculture.

†Students who expect to pursue the curriculum in Agricultural Engineering must be prepared to elect Math. 14, 15 and 17. Those in Agricultural Chemistry should elect Math. 14 and 15, and Speech 7.

***Students taking A. H. curriculum should take Dairy 1 the second semester.

Agriculture—General

This curriculum is designed for persons wishing to return to the farm, enter work allied to farming, for those seeking a general rather than a specialized knowledge of the field of agriculture and for those preparing to work in any general field in agriculture.

By proper use of the electives allowed in this curriculum, a student may choose a field of concentration in agriculture and at the same time elect courses that contribute to a liberal education.

General Agriculture Curriculum†

<i>Sophomore Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 3, 4—Composition and World Literature; or		
Enr. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
P. H. 1—Poultry Production.....	3	....
Dairy 1—Fundamentals of Dairying.....	....	3
Speech 1, 2—Public Speaking.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	19

Junior Year.

Zool. 104—Genetics.....	3	....
Hort. 5—Fruit Production, or Hort. 58—Vegetable Production..	....	3
Ent. 1—Introductory Entomology, or Ent. 10—Applied Entomology	....	2
Agron. 10—General Soils.....	....	4
Agr. Engr. 101—Farm Machinery.....	3	....
Econ. 37—Fundamentals of Economics.....	3	....
Biological or Physical Science Sequence.....	3	3
Electives	6	6
Total.....	18	19

Senior Year

A. E. 50—Farm Economics.....	3	....
A. E. 107—Analysis of the Farm Business.....	3	....
A. E. 108—Farm Management.....	....	3
Agron. 151—Cropping Systems.....	....	2
R. Ed. 114—Rural Life and Education.....	....	3
Electives.....	9	7
Total.....	15	15

AGRICULTURAL CHEMISTRY

This curriculum insures adequate instruction in the fundamentals of both the physical and biological sciences. It may be adjusted through the selection of electives to fit the student for work in agricultural experiment stations, soil bureaus, geological surveys, food laboratories, fertilizer industries and those handling food products.

† If A. H. 1 and Agron. 1 are not elected in the Freshman year they must be elected in subsequent years.

Agricultural Chemistry Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
Chem 15—Qualitative Analysis	4	....
Chem. 21—Quantitative Analysis .....	....	4
Math. 17—Analytic Geometry.....	4	....
Math. 20—Calculus .....	....	4
Bot. 1—General Botany.....	4	....
Zool. 1—General Zoology.....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	19
<i>Junior Year</i>		
Chem. 35, 37—Elementary Organic Lecture.....	2	2
Chem. 36, 38—Elementary Organic Laboratory.....	2	2
Chem. 123—Quantitative Analysis	4	....
Modern Language.....	3	3
Geol. 1—Geology.....	....	3
Agron. 10—General Soils .....	....	4
Math. 21—Calculus.....	4	....
Electives in Biology.....	3	3
Total.....	18	17
<i>Senior Year</i>		
H. 5, 6—History of American Civilization.....	3	3
Modern Language.....	3	3
Phys. 20, 21—General Physics.....	5	5
Electives in Agricultural Chemistry.....	6 or 7	6 or 7
Total.....	17 or 18	17 or 18

AGRICULTURAL ECONOMICS AND MARKETING

The curriculum in agricultural economics and marketing is designed to prepare students for the following types of positions: On the farm as farm operators and farm managers; with farm organizations, such as the Farm Bureau and farmers' cooperatives; with private and corporate business concerns; and positions with state and federal agencies, such as college teachers, agricultural extension workers, and research with federal and state agencies.

The courses in this department are designed to provide fundamental training in the basic economic principles underlying farming. The curriculum includes courses in farm management, general agricultural economics, marketing, finance, prices, taxation, land economics, agricultural policy, and foreign agricultural trade to give the student the foundation needed to meet the production and distribution problems confronting the individual farmer in a progressive rural community.

Farming is a business, as well as a way of life, and as such demands for its successful conduct the use of business methods; the keeping of farm business records, analyzing the farm business, and of organizing and operating the farm as a business enterprise. It requires knowledge of farm resources and taxation, methods of financing agricultural production and marketing, including agencies involved, services rendered and the cost of getting products from the producer to the consumer through cooperative and private types of organization.

Agricultural Economics and Marketing Curriculum*

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
P. H. 1—Poultry Production or Dairy 1 Fundamentals of Dairying	....	3
Chem. 1, 3—General Chemistry.....	4	4
Math. 5—General Mathematics.....	3	....
Econ. 37—Fundamentals of Economics.....	3	....
A. E. 50—Farm Economics .....	....	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	17	17
<i>Junior Year</i>		
A. E. 101—Marketing of Farm Products.....	3	....
A. E. 107—Analysis of the Farm Business.....	3	....
A. E. 104—Farm Finance.....	....	3
H. 5, 6—History of American Civilization.....	3	3
B. A. 130—Elements of Business Statistics.....	....	3
Speech 1, 2—Public Speaking.....	2	2
Agron. 10—General Soils .....	....	4
Electives	6	3
Total.....	17	18
<i>Senior Year</i>		
A. E. 103—Cooperation in Agriculture.....	3	....
A. E. 106—Prices of Farm Products.....	....	3
Agr. Engr. 101—Farm Machinery.....	3	....
A. E. 108—Farm Management.....	....	3
Soc. 113—The Rural Community.....	....	3
A. H. 110—Feeds and Feeding.....	3	....
A. E. 111—Land Economics.....	3	....
A. E. 110—Seminar.....	1	1
Electives.....	5	8
Total.....	18	18

AGRICULTURAL EDUCATION AND RURAL LIFE

The primary objective of this curriculum is to prepare students for teaching vocational agriculture. It also prepares them for work as county agents and allied lines of the rural educational services. Graduates are in demand in rural businesses, particularly of the cooperative type; a number have entered the

*If A.H. 1 and Agron. 1 are not elected in the Freshman year, they must be elected in subsequent years.

Federal service; others are engaged in teaching and research in agricultural colleges; quite a few have returned to the farm as owner-managers.

Courses in extension methods are included in agricultural education. They are especially designed for students who wish to train for extension work, as well as others who wish to learn more about how the extension service operates. Agricultural education majors, as well as others, are urged to take these courses if they can possibly fit them into their curriculum.

In addition to the regular entrance requirements of the University, involving graduation from a standard four-year high school, students electing the agricultural education curriculum must present evidence of having acquired adequate farm experience after reaching the age of fourteen years.

All students following this curriculum are required to attend meetings of the Collegiate Chapter of the Future Farmers of America during their junior and senior years in order to gain needed training to serve as advisers of high school chapters of FFA upon graduation. Freshmen and sophomore agricultural education majors are also urged to become members of the FFA and to participate in the activities of the organization.

Agricultural Education Curriculum*

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
P. H. 1—Poultry Production.....	3	..
Dairy 1—Fundamentals of Dairy Husbandry.....	....	3
Speech 1, 2—Public Speaking.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	19
<i>Junior Year</i>		
Bot. 20—Diseases of Plants.....	3	....
Ent. 1—Introductory Entomology .....	....	3
A. H. 110—Feeds and Feeding.....	3	....
Agron. 10—General Soils.....	....	4
A. Engr. 101—Farm Machinery.....	3	....
R. Ed. 107—Observation and Analysis of Teaching in Agriculture	....	3
Hort. 58—Vegetable Production .....	....	3
Econ. 37—Fundamentals of Economics	3	....
H. D. Ed. 100, 101—Principles of Human Development I and II	3	3
Restricted Science Electives.....	3	3
Total.....	18	19

*If A. H. 1 and Agron. 1 are not elected in the Freshman year, they must be elected in subsequent years.

Senior Year	Semester	
	I	II
A. Engr. 102—Gas Engines, Tractors and Automobiles.....	....	3
R. Ed. 109—Teaching Secondary Vocational Agriculture.....	3	....
R. Ed. 111—Teaching Young and Adult Farmer Groups.....	1	....
†R. Ed. 103—Practice Teaching.....	5	....
R. Ed. 101—Teaching Farm Practicums and Demonstrations....	2	....
A. Engr. 104—Farm Mechanics.....	2	....
A. E. 108—Farm Management .....	....	3
R. Ed. 112—Departmental Management.....	....	1
R. Ed. 114—Rural Life and Education.....	....	3
Electives.....	3	5
Total.....	16	15

AGRICULTURAL ENGINEERING

The department offers to students of agriculture training in those agricultural subjects which are based upon engineering principles. These subjects may be grouped under four heads: farm machinery and farm power, farm buildings, soil and water practices related to engineering.

Five-Year Program in Agriculture—Engineering

For those students who wish to specialize in the application of engineering principles to the physical and biological problems of agriculture there is offered a combined program, extending over a five-year period, arranged jointly by the College of Agriculture and the College of Engineering, and leading to a degree from each of these colleges.

This program prepares graduates to enter state, federal or commercial fields of activity in such work as soil and water conservation, rural electrification, design and sale of farm machinery and structures, and in the development of new uses for farm products and the profitable utilization of farm wastes and by-products.

To be properly trained in these fields a student needs a broader knowledge of basic and applied engineering principles than could be provided in a four-year course in agriculture. He also needs a broader training in the fundamentals of agriculture than a standard four-year course in engineering could furnish.

Upon completion of the normal four-year course of study the degree of Bachelor of Science in Agriculture is granted. For the fifth year the student registers in the College of Engineering, and at the end of that year, upon satisfactory completion of the required course of study, receives a degree in civil, electrical, mechanical or chemical engineering.

†Majors in agricultural education will also be required to take R. Ed. 104, Practice Teaching, four credits (or its equivalent), to be arranged in a four-week period prior to the opening of the University of Maryland in the fall of their senior year.

Curriculum in Agriculture—Engineering

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 1, 2—Composition and Readings in American Literature....	3	3
Speech 7—Public Speaking.....	....	2
*Math. 14—Plane Trigonometry.....	2	....
*Math. 15—College Algebra.....	3	....
Math. 17—Analytic Geometry.....	....	4
Chem. 1, 3—General Chemistry.....	4	4
Dr. 1, 2—Engineering Drawing.....	2	2
Engr. 1—Introduction to Engineering.....	1	....
R. Ed. 1—Introduction to Agriculture.....	1	....
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	20	19

For the students whose final objective is a degree in Civil Engineering, the balance of the curriculum is:

Sophomore Year (Civil Engineering Option)

G. & P. 1—American Government.....	3	....
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Mech. 1—Statics and Dynamics.....	....	3
Surv. 1—Plane Surveying	2	....
Surv. 50—Advanced Surveying.....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	18	20

Junior Year (Civil Engineering Option)

Eng. 3, 4—Composition and World Literature; or Eng. 5 6—Composition and English Literature.....	3	3
Speech 108—Public Speaking.....	....	2
Dr. 3—Advanced Engineering Drawing.....	2	....
Geol. 2—Engineering Geology.....	....	2
Mech. 50—Strength of Materials.....	4	....
Mech. 53—Materials of Engineering.....	....	2
Bot. 1—General Botany.....	4	....
Zool. 1—General Zoology.....	....	4
Agr. Engr. 101—Farm Machinery.....	3	....
Agr. Engr. 107—Farm Drainage.....	....	2
Agr. Engr. 106—Farm Mechanics.....	....	2
Approved Electives.....	3	3
Total.....	19	20

*A qualifying test is given during registration to determine whether the student is adequately prepared for Math. 14 and 15. A student failing this test is required to take Math. 1, Introductory Algebra, without credit, and is not eligible to take Math 14 concurrently.

<i>Fourth Year (Civil Engineering Option)</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
C. E. 50—Fluid Mechanics.....	3	....
Soc. 1—Sociology of American Life.....	....	3
Surv. 100—Curves and Earthwork.....	3	....
C. E. 100—Theory of Structures.....	....	4
M. E. 50—Principle of Mechanical Engineering.....	....	3
E. E. 50—Fundamentals of Electrical Engineering.....	3	....
Agr. Engr. 102—Gas Engines, Tractors and Automobiles.....	....	3
Agr. Engr. 105—Farm Buildings.....	2	....
A. E. 108—Farm Management.....	....	3
Approved Electives.....	8	4
Total.....	19	20

Fifth Year (Civil Engineering Option)

H. 5, 6—History of American Civilization.....	3	3
Econ. 37—Fundamentals of Economics.....	3	....
Engr. 100—Engineering Contracts and Specifications.....	....	2
Engr. 7—Technical Writing.....	....	2
Bact. 55—Lectures in Sanitary Bacteriology.....	2	....
C. E. 101—Soil Mechanics.....	3	....
C. E. 102—Structural Design.....	6	....
C. E. 103—Concrete Design.....	....	6
C. E. 104—Water Supply.....	3	....
C. E. 105—Sewerage.....	....	3
C. E. 106—Elements of Highways.....	....	3
Total.....	20	19

For the student whose final objective is a degree in Mechanical Engineering, the balance of the curriculum is:

Sophomore Year (Mechanical Engineering Option)

G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Surv. 1—Plane Surveying.....	....	2
Dr. 3—Advanced Engineering Drawing.....	2	....
Shop 1—Machine Shop Practice.....	2	....
Shop 2—Machine Shop Practice.....	....	1
Shop 3—Manufacturing Processes.....	....	1
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	20	20

	Semester	
	I	II
<i>Junior Year (Mechanical Engineering Option)</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and Literature.....	3	3
Math. 64—Differential Equations for Engineers.....	3	....
Mech. 2—Statics and Dynamics.....	5	....
Mech. 52—Strength of Materials.....	....	5
Bot. 1—General Botany.....	4	....
Zool. 1—General Zoology.....	....	4
Agr. Engr. 101—Farm Machinery.....	3	....
Agr. Engr. 107—Farm Drainage.....	....	2
Agr. Engr. 106—Farm Mechanics.....	....	2
Approved Elective .....	....	3
Total.....	18	19

Fourth Year (Mechanical Engineering Option)

E. E. 51, 52—Principles of Electrical Engineering.....	4	4
M. E. 53—Metallography.....	....	3
M. E. 54—Fluid Mechanics.....	....	3
M. E. 100—Thermodynamics.....	3	....
Agr. Engr. 102—Gas Engines, Tractors and Automobiles.....	....	3
Agr. Engr. 105—Farm Buildings.....	2	....
A. E. 108—Farm Management.....	....	3
Approved Electives.....	11	4
Total.....	20	20

Fifth Year (Mechanical Engineering Option)

Engr. 100—Engineering Contracts and Specifications.....	....	2
H. 5, 6—History of American Civilization.....	3	3
M. E. 101—Heat Transfer.....	2	....
M. E. 102—Heating and Air Conditioning.....	....	3
M. E. 103—Refrigeration	3	....
M. E. 104, 105—Prime Movers.....	4	4
M. E. 106, 107—Mechanical Engineering Design.....	4	4
M. E. 108, 109—Mechanical Laboratory.....	2	2
Total.....	18	18

For the student whose final objective is a degree in Electrical or Chemical Engineering, curricula corresponding to the foregoing will be arranged.

AGRONOMY

The Department of Agronomy offers instruction in crop production, crop breeding, soil chemistry, soil physics, soil fertility, soil classification, and soil conservation. These courses prepare students to enter various types of private, commercial, state, and federal agronomic positions. By careful election of courses the student may lay a foundation for either advanced study or for employment upon graduation with the B.S. degree. Opportunities for advanced students are shown in the Graduate School catalogue. Depending on the electives chosen, students graduating with the B.S. degree are trained for general farming, farm management, specialized seed production, county agent work, soil conservation, or employment with commercial seed companies, fertilizer companies or equipment manufacturers.

Crop Production Curriculum*

<i>Sophomore Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
Ent. 1—Introductory Entomology.....	3	....
Econ. 37—Fundamentals of Economics.....	....	3
Speech 1, 2—Public Speaking.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	19

Junior Year

Agron. 107—Cereal Crop Production.....	3	....
Agron. 108—Forage Crop Production.....	....	3
Zool. 104—Genetics.....	3	....
Agron. 10—General Soils .....	....	4
Bact. 1—General Bacteriology.....	....	4
Bot. 101—Plant Physiology.....	4	....
Bot. 20—Diseases of Plants.....	3	....
Electives	3	5
Total.....	16	16

Senior Year

Agron. 103—Crop Breeding.....	2	....
Agron. 151—Cropping Systems.....	....	2
Agron. 154—Weed Control in Field Crops.....	3	....
A. E. 108—Farm Management.....	....	3
Agr. Engr. 101—Farm Machinery.....	3	....
**Advanced Soils .....	....	3
A. H. 110—Feeds and Feeding.....	3	....
Agron. 101—Senior Seminar.....	....	1
Electives	5	5
Total.....	16	16

Students specializing in crop breeding will elect Math. 10, Algebra (3), or Math. 13, Elements of Mathematical Statistics (3) in the junior year.

*If A. H. 1 and Agron. 1 are not elected in the Freshman year, they must be elected in subsequent years.

**Any advanced Soils course.

Soils Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Speech 1, 2—Public Speaking.....	2	2
Bot. 1—General Botany	4	....
Physics 10, 11—Fundamentals of Physics.....	4	4
Agron. 10—General Soils .....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	20	20
<i>Junior Year</i>		
Agron. 1—Crop Production.....	....	3
Agron. 112—Commercial Fertilizers.....	....	3
Agron. 116—Soil Analysis for Plant Nutrients.....	3	....
Agron. 114—Soil Classification and Geography.....	....	4
Bot. 101—Plant Physiology.....	4	....
Chem. 15—Qualitative Analysis	4	....
Chem. 19 or 21—Quantitative Analysis.....	....	4
Chem. 35—Organic Chemistry.....	2	....
Chem. 36—Elementary Organic Chemistry Laboratory.....	2	....
Electives .....	....	3
Total.....	15	17
<i>Senior Year</i>		
A. Engr. 107—Farm Drainage .....	....	2
Agron. 119—Soil Mineralogy.....	4	....
Agron. 113—Soil Conservation	3	....
Agron. 151—Cropping Systems.....	....	2
A. E. 108—Farm Management.....	....	3
Agron. 117—Soil Physics	3	....
Agron. 111—Soil Fertility.....	3	....
Zool. 1—General Zoology .....	....	4
Electives	3	5
Total.....	16	16

Students wishing to specialize in soil mapping and farm planning phases of soil conservation will follow the soils curriculum except that Physics 10, 11, and Chem. 15, 19, 35, 36 will not be required. Agron. 107, 108, 105, A.H. 1, 110, Dairy 1, and a course in physics (if the student does not have credit for physics in high school) will be required. Suggested electives are Econ. 37, P.H. 1, Hort. 5, 58, Ag. Eng. 101, Bot. 20, Ent. 1, and Bact. 1.

ANIMAL HUSBANDRY

The curriculum in Animal Husbandry is organized for the purpose of preparing students for various phases of work in the field of animal industry

as: operators and managers of livestock farms, as investigators and research workers in Federal, State and private institutions, and as workers in specialized fields where a knowledge of the livestock industry is necessary.

By proper use of electives, the student may equip himself to become a county agricultural agent; to meet the requirements of positions with certain types of private and cooperative business concerns; or, with more technical and specialized training, to become qualified for instructional work in colleges, for investigational work in State and Federal experiment stations or in commercial research laboratories. Students who desire to enter the field of teaching or highly specialized research should elect the more scientific courses offered by this and by other departments.

Animal Husbandry Curriculum*

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
Chem. 31, 33—Elements of Organic Chemistry.....	2	2
Chem. 32, 34—Elements of Organic Laboratory.....	1	1
Bot. 1—General Botany.....	4	....
Zool. 1—General Zoology.....	....	4
Econ. 37—Fundamentals of Economics.....	3	....
A. H. 30—Types and Breeds of Livestock.....	....	3
Speech 1, 2—Public Speaking.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	19
<i>Junior Year</i>		
H. 5, 6—History of American Civilization.....	3	3
V. S. 101—Comparative Anatomy and Physiology.....	3	....
V. S. 102—Animal Hygiene.....	....	3
A. H. 110—Feeds and Feeding.....	3	....
A. H. 120—Principles of Breeding.....	....	3
A. H. 131—Sheep Production.....	....	3
**A. H. 140—Livestock Management.....	....	3
Zool. 104—Genetics.....	3	....
Agron. 1—Crop Production.....	....	3
Electives	6	0
Total.....	18	18

*Students planning this curriculum should elect A. H. 1 the first semester and Dairy 1 the second semester of the freshman year.

**Required for students lacking Farm Experience.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
A. H. 111—Animal Nutrition.....	3	....
A. H. 130—Beef Cattle Production.....	3	....
A. H. 132—Swine Production.....	....	3
A. H. 150—Livestock Markets and Marketing.....	2	....
A. H. 160—Meat and Meat Products.....	....	3
Agr. Eng. 101—Farm Machinery.....	3	....
A. E. 108—Farm Management.....	....	3
Bact. 1—General Bacteriology	4	....
Agron. 10—General Soils .....	....	4
A. H. 170, 171—Seminar.....	1	1
Electives.....	3	4
Total.....	19	18

BOTANY

The department offers three major fields of work; plant morphology and taxonomy; plant pathology; or plant physiology and ecology. The required courses for the freshman and sophomore years are the same for all students. In the junior and senior years, the student elects botany courses to suit his particular interest. Courses are required in other subjects to contribute toward a broad cultural education, and to support the courses selected in the chosen field of botany.

Through cooperation with the College of Education, students who wish to meet the requirements for the state high school teacher's certificates, may elect the necessary work in education.

The curriculum as outlined, provides a complete survey of the field of botany for prospective high school teachers, and lays a good foundation for graduate work in botany in preparation for college teaching and for research in state or federal experiment stations, or in private research laboratories.

Students are also afforded an opportunity for training for other vocations involving various botanical applications, such as extension work, and positions with seed companies, canning companies and other commercial concerns.

Botany Curriculum

<i>Sophomore Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
Modern Language, preferably German.....	3	3
Bot. 20—Diseases of Plants.....	3	....
Bot. 2—General Botany.....	....	4
Chem. 1, 3—General Chemistry.....	4	4
Speech 1, 2—Public Speaking.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	20

<i>Junior Year</i>	<i>(Semester)</i>	
	<i>I</i>	<i>II</i>
H. 5, 6—History of American Civilization.....	3	3
Modern Language.....	3	3
Phys. 10, 11—Fundamentals of Physics.....	4	4
Bot. 101—Plant Physiology.....	4	....
Bot. 11—Plant Taxonomy.....	....	3
Bot. 110—Plant Microtechnique.....	....	3
Bact. 1—Bacteriology.....	4	....
Electives.....	3	3
Total.....	21	19
<i>Senior Year</i>		
Bot. 112—Seminar.....	1	1
Bot. 111—Plant Anatomy.....	3	....
Bot. 102—Plant Ecology.....	....	3
Bot. 115—Structure of Economic Plants.....	....	3
Zool. 104—Genetics.....	3	....
Botany Electives.....	4-8	2-5
Electives.....	5-0	7-4
Total.....	16	16

Students specializing in Plant Morphology or Plant Taxonomy will elect Bot. 114 and Bot. 128; those specializing in Plant Pathology will elect Bot. 122, Ent. 1, and two of the following: Bot. 123, Bot. 124, Bot. 125, Bot. 126; those specializing in Plant Physiology will elect Organic Chemistry, Chem. 31, 32, 33, 34.

DAIRY

The Dairy Department offers instruction in two major lines of work; dairy husbandry and dairy technology. In the dairy husbandry curriculum, students are given technical and practical training in the breeding, feeding, management, and selection of dairy cattle and in milk production. With suitable choice of courses, students are qualified as operators of dairy farms, for breed promotion and sales work, for employment with private and co-operative business organizations, and for county agent work. The dairy technology curriculum is designed to prepare students for practical and scientific work concerned with the processing and distribution of milk, manufacture and handling of butter, cheese, ice cream, and other products, in dairy plant operation and management, and in dairy inspection and quality control. Students satisfactorily majoring in dairy technology are qualified for the many technical and applied positions in the various branches of the dairy industry.

By careful election of courses in either curriculum the student may lay a foundation for advanced study, for instructional work in colleges, and for research in experiment stations or commercial laboratories. The suggested curricula will be modified to meet the special needs of individual students.

Dairy Husbandry Curriculum*

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
Chem. 31, 33—Elements of Organic Chemistry.....	2	2
Chem. 32, 34—Elements of Organic Chemistry Laboratory.....	1	1
Bot. 1—General Botany.....	4	....
Zool. 1—General Zoology	4	....
Bact. 1—General Bacteriology.....	....	4
Dairy 20—Dairy Breeds and Selection.....	2	....
Agron. 1—Crop Production .....	....	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Dairy 30—Dairy Cattle Judging.....	....	2
Total.....	20	19
<i>Junior Year</i>		
H. 5, 6—History of American Civilization.....	3	3
Agron. 10—General Soils .....	....	4
A. H. 110—Feeds and Feeding.....	3	....
Bact. 133—Dairy Bacteriology.....	4	....
Dairy 103—Physiology of Milk Secretion.....	....	3
Speech 1, 2—Public Speaking.....	2	2
Zool. 104—Genetics.....	3	....
Electives	3	6
Total.....	18	18
<i>Senior Year</i>		
Agr. Engr. 101—Farm Machinery.....	3	....
A. E. 108—Farm Management.....	....	3
Econ. 37—Fundamentals of Economics.....	....	3
V. S. 101—Comparative Anatomy and Physiology.....	3	....
V. S. 102—Animal Hygiene.....	....	3
A. H. 111—Animal Nutrition.....	3	....
Dairy 101—Dairy Production	3	....
Dairy 105—Dairy Cattle Breeding.....	....	3
Dairy 120—Dairy Seminar .....	....	1
Electives	4	4
Total.....	16	17

*Students planning to pursue this curriculum should elect Dairy 1 the second semester of the freshman year. If A. H. 1 is not elected in the freshman year it must be taken in subsequent years.

Dairy Technology Curriculum*

Technical Phase

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
Chem. 19—Quantitative Analysis.....	....	4
II. 5, 6—History of American Civilization.....	3	3
Bact. 1—General Bacteriology.....	4	....
Bot. 1—General Botany.....	4	....
Zool. 1—General Zoology.....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	18	18
<i>Junior Year</i>		
Chem. 31, 33—Elements of Organic Chemistry.....	2	2
Chem. 32, 34—Elements of Organic Chemistry Laboratory.....	1	1
Bact. 133—Dairy Bacteriology.....	4	....
Dairy 40—Grading Dairy Products.....	....	2
Dairy 108—Dairy Technology.....	4	....
Dairy 110—Butter and Cheese Making.....	....	3
Speech 1, 2—Public Speaking.....	2	2
Econ. 37—Fundamentals of Economics.....	3	....
Physics 1—Elements of Physics.....	....	3
Electives	3	4
Total.....	19	17
<i>Senior Year</i>		
Dairy 109—Market Milk.....	4	....
Dairy 111—Concentrated Milk Products.....	....	3
Dairy 112—Ice Cream.....	....	4
Dairy 114—Special Laboratory Methods.....	....	4
Dairy 115—Quality Control in the Dairy Industry.....	3	....
Dairy 116—Dairy Plant Management.....	....	3
Dairy 120—Dairy Seminar.....	....	1
Agr. Eng. 111—Fundamentals of Food Processing.....	....	3
Electives	7	3
Total.....	17	18

*Students may elect to take either the Technical or the Business Phase. Dairy 1 should be taken during the Freshman Year.

*Business Phase**Sophomore Year*

	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Bot. 1—General Botany	4	....
Zool. 1—General Zoology .....	....	4
Bact. 1—General Bacteriology	4	....
Econ. 37—Fundamentals of Economics.....	....	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities	1	1
Total.....	18	17

Junior Year

B. A. 10, 11—Organization and Control.....	2	2
B. A. 20, 21—Principles of Accounting.....	4	4
Speech 1, 2—Public Speaking.....	2	2
Dairy 40—Grading Dairy Products.....	....	2
Dairy 110—Butter and Cheese Making.....	....	3
A. E. 115—Marketing Dairy Products.....	3	....
Bact. 133—Dairy Bacteriology	4	....
Electives	3	6
Total.....	18	19

Senior Year

Dairy 103—Dairy Technology	4	....
Dairy 109—Market Milk	4	....
Dairy 111—Concentrated Milk Products.....	....	3
Dairy 112—Ice Cream Making.....	....	4
Dairy 115—Quality Control in the Dairy Industry.....	3	....
Dairy 116—Dairy Plant Management.....	....	3
Dairy 121—Dairy Seminar .....	....	1
A. E. 111—Fundamentals of Food Processing.....	3	....
Electives	6	6
Total.....	20	17

ENTOMOLOGY

This curriculum, which trains students for work in various types of private, commercial, state and federal entomological positions, includes basic courses in Entomology and related fields. Most of the first two years is devoted to obtaining this essential background. In the junior and senior years the student, besides the required courses, will choose 18 credit hours from the following list according to his needs: A. H. 1; Agron. 1; Agron. 10; Bact. 133; Bot. 123; Bot. 124; Bot. 125; Chem. 31, 33; Chem. 32, 34; Dairy 1; French 1; German 1, 2; Hort.

5, 6; Hort 11; Hort. 58; Hort. 59; Math. 5, 10, or 11; Physics 1, 2; Zool. 104. Other electives in Entomology and related subjects are available to broaden the scope of the training.

A student wishing an undergraduate minor in Entomology should take the introductory course (Ent. 1) and after consultation with the heads of both the major and minor departments will select courses that will contribute most to the end he has in view.

Entomology Curriculum*

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4, or 5, 6.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
Ent. 2—Insect Morphology.....	3	....
Ent. 3—Insect Taxonomy.....	....	3
Bot. 1—General Botany.....	4	....
Bact. 1—General Bacteriology.....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	18	18
<i>Junior Year</i>		
H. 5, 6—History of American Civilization.....	3	3
Speech 1, 2—Public Speaking.....	2	2
Bot. 20—Diseases of Plants.....	3	....
Ent. 105—Medical Entomology.....	3	....
Ent. 101—Economic Entomology.....	....	3
Courses from suggested list.....	5	5
Electives	3	6
Total.....	19	19
<i>Senior Year</i>		
***Ent. 110, 111—Special Problems.....	1	1
Ent. 112—Seminar.....	1	1
**Ent. 116—Insect Pests of Ornamentals and Greenhouse Plants..	....	3
**Ent. 117—Insect Pests of Field Crops and Stored Products...	2	....
**Ent. 118—Insect Pests of Fruit and Vegetable Crops.....	....	3
**Ent. 119—Insect Pests of Domestic Animals.....	2	....
Courses from suggested list.....	4	4
Electives	6	4
Total.....	16	16

*Students planning to pursue this curriculum should elect Ent. 1 the second semester of the Freshman year.

**Of these four courses each student is required to take only two.

***Students may satisfy this requirement in one semester, if their schedule permits, or expand the work and credits upon departmental approval.

HORTICULTURE

The Department of Horticulture offers instruction in pomology (fruits), olericulture (vegetables), floriculture (flowers) and ornamental gardening, and processing of horticultural crops. These courses prepare students to enter commercial production and the horticultural industries such as fruit and vegetable processing and seed production. Students are likewise prepared to enter the allied industries as horticultural workers with fertilizer companies, equipment manufacturers, and others. Students who wish to enter specialized fields of research and teaching may take advanced work in the department. A minimum of 24 credit hours in horticultural courses is required for graduation.

Pomology and Olericulture Curriculum.

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
Bot. 20—Diseases of Plants.....	3	....
Hort. 5, 6—Fruit Production.....	3	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Electives.....	....	2
Total.....	20	18
<i>Junior Year</i>		
Bot. 101—Plant Physiology.....	4	....
Bot. 111—Plant Anatomy.....	3	....
Agron. 10—General Soils.....	....	4
Hort. 58—Vegetable Production.....	....	3
Hort. 59—Small Fruits.....	....	3
Speech 1, 2—Public Speaking.....	2	2
Econ. 37—Fundamentals of Economics.....	....	3
*Electives.....	9	2
Total.....	18	17
<i>Senior Year</i>		
Bot. 125—Diseases of Fruit Crops.....	2	....
or		
Bot. 126—Diseases of Vegetable Crops.....	....	2
Hort. 101, 102—Technology of Fruits.....	2	2
or		
Hort. 103, 104—Technology of Vegetables.....	2	2
Zool. 104—Genetics.....	3	....
Bot. 115—Structure of Economic Plants.....	....	3
Hort. 118, 119—Seminar.....	1	1
*Electives.....	8	9
Total.....	16	17

*Electives must include a minimum total of seven credits from the following courses:
Hort. 11, 22, 62, 106, 107, 108, 114, 116, 122.

Floriculture and Ornamental Horticultural Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
Bot. 11—Plant Taxonomy.....	....	3
Bot. 20—Diseases of Plants.....	3	....
Hort. 22—Landscape Gardening.....	2	....
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	17
<i>Junior Year</i>		
Bot. 101—Plant Physiology	4	....
Bot. 111—Plant Anatomy	3	....
Bot. 123—Diseases of Ornamental Crops.....	....	2
Econ. 37—Fundamentals of Economics.....	....	3
Agron. 10—General Soils .....	....	4
Hort. 11—Greenhouse Management .....	....	3
Hort. 62—Plant Propagation	3	....
Hort. 107, 108—Plant Materials.....	3	3
Electives	5	2
Total.....	18	17
<i>Senior Year</i>		
Speech 1, 2—Public Speaking.....	2	2
Zool. 104—Genetics	3	....
Hort. 16—Garden Flowers .....	....	3
Hort. 105—Technology of Ornamentals.....	2	....
Hort. 118, 119—Seminar	1	1
Hort. 150, 151—Commercial Floriculture.....	3	3
or		
Hort. 152, 153—Landscape Design.....	3	3
Electives	7	8
Total.....	17	16

Commercial Processing of Horticultural Crops Curriculum

<i>Sophomore Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 3, 4—Composition and World Literature; or		
Eng. 5, 6—Composition and English Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Chem. 31, 33—Elements of Organic Chemistry.....	2	2
Chem. 32, 34—Elements of Organic Laboratory.....	1	1
Phys. 1, 2—Elements of Physics.....	3	3
Hort. 61—Processing Industries.....	....	1
Bact. 1—General Bacteriology.....	4	....
A. S. 3, 4—Basic Air Force R. O. T. S. (Men).....	3	3
Physical Activities.....	1	1
Total.....	20	17

Junior Year

Speech 1—Public Speaking	2	....
Agron. 10—General Soils .....	....	4
Econ. 37—Fundamentals of Economics.....	3	....
Hort. 155, 156—Commercial Processing.....	3	2
Bot. 101—Plant Physiology.....	4	....
Bact. 131—Food and Sanitary Bacteriology	4	....
Hort. 58—Vegetable Production.....	....	3
Zool. 1—General Zoology.....	....	4
Agr. Engr. 111—Mechanics of Food Processing.....	3	....
Agr. Engr. 112—Machinery and Equipment for Food Processing .....	....	2
Electives .....	....	5
Total.....	19	20

Senior Year

Hort. 103, 104—Technology of Vegetables.....	2	2
Hort. 121—Plant Operations.....	2	....
Hort. 123—Grading and Judging of Canned and Frozen Products .....	....	2
Hort. 124—Quality Control.....	3	....
A. E. 105—Food Products Inspection.....	....	2
Hort. 113, 119—Seminar.....	1	1
and one of the following options:		

MANAGEMENT

Econ. 160—Labor Economics.....	3	....
B. A. 150—Market Management.....	3	....
B. A. 160—Personnel Management.....	....	3
Electives.....	....	4
Total.....	14	14

TECHNOLOGY

Chem. 19—Quantitative Analysis.....	4	....
Bact. 52—Sanitary Bacteriology.....	....	2
Hort. 126—Nutritional Analyses of Processed Crops.....	..	2
Electives.....	2	3
Total.....	4	14

POULTRY HUSBANDRY

The curriculum in Poultry Husbandry is designed to give the student a thorough knowledge of subject matter necessary for poultry raising; the marketing, distribution, and processing of poultry products; poultry improvement work; and as a basis for graduate training for teaching and research in poultry husbandry.

The suggested curriculum will be modified to meet the special needs of individual students. Superior students, definitely anticipating preparation for a professional career in poultry husbandry, will be expected to take a language. However, all students majoring in poultry husbandry will be required to complete 24 semester hours in poultry husbandry.

Poultry Curriculum*

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4 or 5, 6.....	3	3
Chem. 1, 3—General Chemistry.....	4	4
P. H. 2—Poultry Biology.....	....	2
Speech 1, 2—Public Speaking.....	2	2
H. 5, 6—History of American Civilization.....	3	3
Math. 5—General Mathematics.....	3	....
A. S. 3, 4—Elementary R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	18

Junior Year

P. H. 101—Poultry Nutrition.....	3	....
P. H. 102—Physiology of Hatchability. ....	....	3
P. H. 100—Poultry Breeding.....	....	2
**Zool. 20—Vertebrate Embryology.....	....	4
Bact. 1—General Bacteriology.....	4	....
Zool. 104—Genetics.....	3	....
Econ. 37—Fundamentals of Economics.....	....	3
B. A. 130—Elements of Business Statistics.....	3	....
Eng. 7—Technical Writing.....	....	2
Electives	4	3
Total.....	17	17

*Students planning to pursue this curriculum should elect P. H. 1, the first semester of the Freshman Year. If Agron. 1 is not elected in the Freshman Year, it must be elected in a subsequent year.

**Required of students specializing in poultry genetics, physiology, or nutrition.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
P. H. 104—Technology of Market Eggs and Poultry.....	3	....
A. E. 117—Economics of Marketing Eggs and Poultry.....	....	3
V. S. 108—Avian Anatomy.....	3	....
V. S. 107—Poultry Hygiene.....	....	3
P. H. 103—Commercial Poultry Management.....	....	3
P. H. 107—Poultry Industrial and Economic Problems.....	2	....
Agr. Engr.—Elective.....	2-3	....
Electives.....	6-7	10
Total.....	17	19

Pre-Forestry Students

The College of Agriculture is glad to cooperate with any student who wishes to attend the University to pursue courses which may be transferred to a standard forestry curriculum in another institution. The program which a student follows depends to some extent upon the forestry college he plans to enter. All pre-forestry students in the College of Agriculture are sent to the Department of Botany of the University for counsel and advice in these matters.

Pre-Theological Students

The College of Agriculture is glad to cooperate with the officers of any theological seminary who desire to urge its prospective students to pursue courses in agriculture as a preparation for the rural ministry. Such pre-theological students may enroll for a semester or more or for the usual four year training of the College. In either case they should enroll as members of the general curriculum in the College of Agriculture.

The electives of this curriculum may be used for such pre-theological requirements as seem desirable. Elections may be made from any of the offerings of the University such as history, political science, philosophy, agricultural economics, rural sociology, modern language, English, economics, psychology, sociology, natural science, education and the like. Students desiring to pursue a pre-theological program in the College of Agriculture of the University of Maryland, should consult with the president or admissions officer of the theological seminary which they expect to attend.

Pre-Veterinary Students

The College of Agriculture is glad to cooperate with any student who wishes to attend the University to pursue preparation for the study of Veterinary Science. The curriculum which a student will follow will depend to some extent upon the Veterinary College which he plans to enter. All Pre-

Veterinary students in the College of Agriculture are sent to the Head of the Department of Veterinary Science of the University for counsel and advice in these matters.

Special Students in Agriculture

Mature students may, with consent of the Dean, register as special students and pursue a program of studies not included in any regular curriculum, but arranged to meet the needs of the individual. All university fees for these special students are the same as fees for regular students.

There are many young farmers who desire to take short intensive courses in their special lines of work during slack times on the farm. Arrangements have been made to permit such persons to register at the office of the Dean of the College of Agriculture and receive cards granting them permission to visit classes and work in the laboratories of the different departments. This opportunity is created to aid florists, poultrymen, fruit-growers, gardeners, or other especially interested persons who are able to get away from their work at some time during the year.

The regular charges are \$10.00 for matriculation and \$2.00 per credit hour per month for the time of attendance. One matriculation is good for any amount of regular or intermittent attendance during a period of four years.

COURSE OFFERINGS

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designated by numbers as follows:

1 to 99: courses for undergraduates.

100 to 199: courses for advanced undergraduates and graduates. (Not all courses numbered 100 to 199 may be taken for graduate credit)

200 to 299: courses for graduates only.

A course with a single number extends through one semester. A course with a double number extends through two semesters.

Courses not otherwise designated are lecture courses. The number of hours' credit is shown by the arabic numeral in parentheses after the title of the course.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

AGRICULTURAL ECONOMICS AND MARKETING

Professors Poffenberger, DeVault, (emeritus), Beal, Walker; Associate Professors Hamilton, Shull; Assistant Professor Bohanan, Smith, Burns.

A. E. 50. Farm Economics (3).

Second semester. Prerequisite, Econ. 37. A general course in agricultural economics, with special reference to population trends, the factors in agricultural production, agricultural wealth, land tenure, farm labor, agricultural credit, the tariff, price movements, and marketing. (Shull.)

For Advanced Undergraduates and Graduates**A. E. S100 A-B. Special Problems in Farm Economics (1, 1).**

Summer session only. An advanced course dealing extensively with some of the economic problems affecting the farmer, such as land values, taxation, credit, prices, production adjustments, transportation, marketing and cooperation. Designed primarily for teachers of vocational agriculture. (Staff.)

A. E. 101. Marketing of Farm Products (3).

Second semester. Prerequisite Econ. 31, 32, or Econ. 37. The development of marketing, its scope, channels, and agencies of distribution, functions, costs, methods used and services rendered. (Shull.)

A. E. 103. Cooperation in Agriculture (3).

First semester. Historical and comparative development of farmers' cooperative organizations; reasons for failure and essentials to success; commodity developments; operative practices; banks for cooperatives; present trends. (Poffenberger.)

A. E. 104. Farm Finance (3).

Second semester. A study of credit principles as applied to private and cooperative farm businesses and the agencies extending farm credit. The needs for and benefits of farm insurance, including fire, crop, livestock, and life insurance. (Poffenberger.)

A. E. 106. Prices of Farm Products (3).

Second semester. A general course in prices, price relationships, and price analysis, with emphasis on prices of agricultural products. (Poffenberger.)

A. E. 107. Analysis of the Farm Business (3).

First semester. A concise, practical course in the keeping, summarizing, and analyzing of farm accounts. (Hamilton.)

A. E. 108. Farm Management (3).

Second semester. A study of the organization and operation of farms from the standpoint of efficiency, selection of farms, size of farms, leasing systems, and factors affecting profits. Students will make an analysis of the actual farm business and

practices of different types of farms, and make specific recommendations as to how these farms may be organized and operate as successful businesses. (Hamilton.)

A. E. 109. Research Problems (1-2).

First and second semesters. With the permission of the instructor, students will work on any research problems in agricultural economics. There will be occasional class meetings for the purpose of making reports on progress of work. (Staff.)

A. E. 110. Seminar (1, 1).

First and second semesters. Students will prepare and present reports on economic literature and current agricultural economic problems. (Hamilton.)

A. E. 111. Land Economics (3).

First semester. A study of the principles, problems and policies in the utilization of land with special emphasis on agricultural land. (Bohanan.)

A. E. 112. Economic Development of American Agriculture (3).

First semester. This course is designed to acquaint students with major economic development in American agriculture. It places particular emphasis upon the economic impact of major agricultural movements, such as, Colonial agrarianism, the disposition of the public domain, farm organizations, recent governmental farm programs and the relationship of agriculture to public affairs. (Beal.)

A. E. 114. Foreign Trade in Farm Products (3).

Second semester. Trends in world trade for agricultural products; the position of the United States in world trade of agricultural products; farm relief measures and international trade; reciprocal trade agreements; postwar developments. (Shull.)

A. E. 115. Marketing of Dairy Products (3).

First semester. A study of principles and practices in the marketing of milk and manufactured dairy products, including the influence of significant geographical and institutional relationships on costs and methods of distribution. (Beal.)

A. E. 116. Marketing of Fruits and Vegetables (3).

Second semester. A study of principles and practices in the marketing of fresh and processed fruits and vegetables, including the influence of significant geographical and institutional relationships on costs and methods of distribution. (Burns.)

A. E. 117. Economics of Marketing Eggs and Poultry (3).

Second semester. This course embraces the economic phases of egg and poultry marketing. Supply and demand factors, including trends, will be discussed along with marketing methods, marketing costs and margins, market facilities, transportation, government grading, storage and efficiency in marketing. Consumer preference, acceptance and purchases will be related to consumer income, pricing of competitive products, and display methods. (Smith.)

A. E. 118. Foreign Agricultural Policies (3).

First semester. This course covers the framework within which the foreign agri-

cultural policy of the United States and major foreign countries is formulated. Special emphasis will be given to the importance of imports and exports to the agricultural economy of the United States and other countries. The effect of various incentives and barriers to world trade will be appraised.

A. E. 119. Foreign Agricultural Economics (3).

Second semester. This course deals with factors affecting variations between nations in agricultural production, consumption and trade of principal crop and livestock products. Emphasis will also be given to land tenure, population trends, agricultural wealth, price movements and marketing.

Technology of Market Eggs and Poultry.

See Poultry Husbandry, P. H. 104.

Poultry Industrial and Economic Problems.

See Poultry Husbandry, P. H. 107.

Market Milk.

See Dairy 109.

Livestock Markets and Marketing.

See Animal Husbandry, A. H. 150.

Meat and Meat Products.

See Animal Husbandry, A. H. 160.

Advertising.

See Business Administration, B. A. 151.

Retail Store Management.

See Business Administration, B. A. 154.

For Graduates

A. E. 200, 201. Special Problems in Farm Economics (2, 2).

First and second semesters. An advance course dealing extensively with some of the economic problems affecting the farmer, such as land values, taxation, credit, prices, production adjustments, transportation, marketing, and cooperation. (Staff.)

A. E. 203. Research.

Credit according to work accomplished. This course will consist of special reports by students on current economic subjects, and a discussion and criticism of the same by the members of the class and instructional staff. (Staff.)

A. E. 202. Seminar (1, 1).

First and second semesters. Students will be assigned research in agricultural economics under the supervision of the instructor. The work will consist of original investigation in problems of agricultural economics. (Staff.)

A. E. S207. Farm Business Analysis (1).

Summer session only. An advanced course dealing with farm records and accounts. Designed especially for teachers of agriculture and county agents. (Hamilton.)

A. E. 208. Agricultural Policy (3).

Second semester. The evolution of agricultural policy in the United States, emphasizing the origin and development of governmental programs, and their effects upon agricultural production, prices and income. (Beal.)

A. E. 210. Agricultural Taxation (3).

First semester. Principles, theory and practical problems of taxation applied to the field of agriculture; trends in farm taxes; farm tax burdens; equalizing and reducing farm tax burdens; taxation of farm cooperatives; forest lands and interstate agricultural commerce; application of income taxes and sales taxes to farmers; taxation of agriculture in foreign countries. (Walker.)

A. E. 211. Functional Aspects of Farm Taxation (3).

Second semester. Two lectures and one laboratory period a week. Taxation policies and inter-governmental allocations and grants-in-aid as they affect public services for rural people, with special emphasis on public education, public highways, public welfare, social security, public debt; and governmental research, extension, and regulatory activities directly concerning agriculture. (Walker.)

A. E. 214. Advanced Agricultural Marketing (3).

First semester. This course is designed to acquaint graduate students in agricultural marketing with the complex theoretical, institutional and legal relationships which influence the marketing of agricultural products. It will deal with agricultural marketing in both domestic and foreign trade. (Staff.)

A. E. 215. Advanced Agricultural Cooperation (3).

First semester. An appraisal of agricultural cooperation as a means of improving the financial status of farmers. More specifically, the course includes a critical analysis and appraisal of specific types and classes of cooperatives. (Poffenberger.)

A. E. 216. Advanced Farm Management (3).

Second semester. An advanced course in farm organization and management which applies the economic principles of farm production to the operation of farms of different sizes, types, operations, and geographical locations. Consideration is also given to adjustments which have taken place in farming specific areas and probable changes in the future.

A. E. S216 A-B. Advanced Farm Management (1, 1).

Summer session only. An advanced course in farm organization and management, especially designed for teachers of vocational agriculture. (Hamilton.)

A. E. 218. Agricultural Economics Research Techniques (3).

First semester. A study and an appraisal of agricultural economics research techniques. Experience is given in outlining and conducting research projects. A critical appraisal is made of methods of analysis and the presentation of results. (Bohanan.)

A. E. 219. Advanced Land Economics (3).

Second semester. A critical analysis of the principles and problems in using and controlling land resources, including a review of land policies, is given, with special consideration being placed on the problems of submarginal lands, range lands, and water resources. Conservation of various land resources is appraised; problems of landed property are presented; and criteria essential to the development of a sound land policy are studied. (Bohanan.)

AGRICULTURAL EDUCATION AND RURAL LIFE

Professors Ahalt, Cotterman; Assistant Professor Hopkins; Lecturer Warner

R. Ed. 1.—Introduction to Agriculture (1).

First semester. Required of all beginning freshmen and sophomores in Agriculture. Other students must get the consent of the instructor. A series of lectures introducing the student to the broad field of agriculture.

For Advanced Undergraduates**R. Ed. 101. Teaching Farm Practicums and Demonstrations (2).**

First semester. Two laboratory periods a week. This course is designed to assist the student in relating the learning acquired with the problems of doing and demonstrating which he faces in the field and in the classroom as a teacher of agriculture. (Hopkins.)

R. Ed. 103. Practice Teaching (5).

First semester. Open only to students majoring in Agricultural Education who have a satisfactory scholastic average. Five weeks, full time. Under the direction of a supervising teacher and the supervision of a teacher-trainer the student is required to analyze and prepare special units of subject matter in agriculture, plan and teach lessons, supervise farming programs of students and otherwise perform the duties of a high school teacher of vocational agriculture. Not less than 125 clock hours, exclusive of observation, shall be required. (Ahalt.)

R. Ed. 104. Practice Teaching (1-4).

First and second semesters. Registration concurrent or after R. Ed. 103. One to four weeks full time. To provide students an opportunity to gain experience in farming program supervision, the opening of school, and in other teaching activities not generally a part of R. Ed. 103. (Ahalt.)

For Advanced Undergraduates and Graduates**R. Ed. 107. Observation and Analysis of Teaching in Agriculture (3).**

Second semester. Two lectures and one laboratory period a week. This course deals with an analysis of pupil learning in class groups. (Ahalt, Hopkins.)

R. Ed. 109. Teaching Secondary Vocational Agriculture (3).

First semester. A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particularly placement, supervised farming programs, the organization and administration of Future Farmer activities, and objectives and methods in all-day instruction. (Ahalt, Hopkins.)

R. Ed. 111. Teaching Young and Adult Farmer Groups (1).

First semester. Characteristics of young and adult farmer instruction in agriculture. Determining needs for and organizing a course; selecting materials for instruction; and class management. Emphasis is on the conference method of teaching. (Hopkins.)

R. Ed. 112. Departmental Management (1).

Second semester. One laboratory period a week. Prerequisites, R. Ed. 107, 109. The analysis of administrative programs for high school departments of vocational agriculture. Investigations and reports. (Ahalt, Hopkins.)

R. Ed. 114. Rural Life and Education (3).

Second semester. An intensive study of the educational agencies at work in rural communities, stressing an analysis of school patronage areas, the possibilities of normal life in rural areas, early beginnings in rural education, and the conditioning effects of educational offerings. (Ahalt.)

R. Ed. 150. Extension Education (2).

Second semester. The Agricultural Extension Service as an educational agency. The history, philosophy, objectives, policy, organization, legislation and methods used in extension work. (Warner.)

R. Ed. 160. Agricultural Information Methods (2).

First semester. General introduction to agricultural public relations programs, including writing for and use of newspapers, magazines, direct mail, radio, and television; and production and use of visual aids such as photographs, slides, exhibits, and posters. (———.)

For Graduates**R. Ed. 201, 202. Rural Life and Education (3, 3).**

First and second semesters. Prerequisite, R. Ed. 114 or equivalent. A sociological approach to rural education as a movement for a good life in rural communities. (Ahalt.)

R. Ed. 207, 208. Problems in Vocational Agriculture (2, 2).

First and second semesters. In this course special emphasis is placed upon the current problems facing teachers of vocational agriculture. It is designed especially for persons who have had several years of teaching experience in this field. (Ahalt, Hopkins.)

R. Ed. S207. A-B. Problems in Teaching Vocational Agriculture (1-1).

Summer session only. A critical analysis of current problems in the teaching of vocational agriculture with special emphasis upon recent developments in all-day programs.

R. Ed. S208. A-B. Problems in Teaching Farm Mechanics (1-1).

Summer session only. The latest developments in the teaching of Farm Mechanics. Various methods in use will be compared and studied under laboratory conditions.

R. Ed. S209. A-B. Adult Education in Agriculture (1-1).

Summer session only. Principles of adult education as applied to rural groups, especially young and adult farmers. Organizing classes, planning courses and instructional methods are stressed.

R. Ed. S210. A-B. Land Grant College Education (1-1).

Summer session only. Development of Land Grant Colleges and Experiment Stations and the role they have played in improving conditions in rural communities.

R. Ed. S211 A-B. Agricultural Extension Service Education (1-1).

Summer session only. Development of the extension service. Types of demonstrations and instruction used. The role of the County Agricultural and Home Demonstration Agents and 4-H Clubs in the development of rural society.

R. Ed. S212 A-B. Educational Functions of Rural Institutions (1-1).

Summer session only. The part of rural institutions in developing and supporting education for rural areas, with special emphasis on the various phases of agricultural education.

R. Ed. S213 A-B. Supervision and Administration of Vocational Agriculture (1-1).

Summer session only. Administrative and supervisory problems in Vocational Agriculture including scheduling, local administrative programs, supervisor-teacher relationships and the responsibilities of superintendents and principals in the program.

R. Ed. 215. Supervision of Student Teaching (1).

Arranged. The role of the supervising teacher in checking progress, supervising and grading student teachers. Particular emphasis will be given to the region-wide program in training teachers of vocational agriculture, including the evaluation of beginning teachers. (Ahalt.)

R. Ed. 220. Field Problems in Rural Education (1-3).

First and second semesters. Prerequisite, six semester hours of graduate study. Problems accepted depend upon the character of the work of the student and the facilities available for study. Periodic conferences required. Final report must follow accepted pattern for field investigations. (Ahalt, Hopkins.)

R. Ed. 240. Agricultural College Instruction (1).

Second semester. Open to graduate students and members of the faculty in the College of Agriculture. A seminar type of course consisting of reports, discussions, and lectures dealing with the techniques and procedures adapted to teaching agricultural subjects at the college level. (Cotterman, Ahalt.)

R. Ed. 250. Seminar in Rural Education (1-1).

First and second semesters. Problems in the organization, administration, and super-

vision of the several agencies of rural education. Investigations, papers, and reports.
(Staff.)

R. Ed. S250. A-B. Seminar in Rural Education (1-1).

Summer session only. Current problems of teaching agriculture are analyzed and discussed. Students are required to make investigations, prepare papers and make reports.

R. Ed. 251. Research.

Credit hours according to work done. (Staff.)

AGRICULTURAL ENGINEERING

Professor Carpenter; Associate Professor Gienger; Assistant Professor Matthews; Instructor George

For Advanced Undergraduates and Graduates

Agr. Engr. 101—Farm Machinery (3).

First semester. Two lectures and one laboratory period a week. A study of the economics, design and adjustments of modern horse and tractor-drawn machinery. Laboratory work consists of detailed study of actual machines, their calibration, adjustment, and repair. (George.)

Agr. Engr. 102. Gas Engines, Tractors and Automobiles (3).

Second semester. Two lectures and one laboratory period a week. A study of the design, operation, and repair of the internal combustion engines, tractors, and automobiles used in farm practice. (Matthews, Gienger.)

Agr. Engr. 104. Farm Mechanics (2).

First semester. Two laboratory periods a week. This course consists of laboratory exercises in practical farm shop and farm equipment repair and construction projects, and a study of the principles of shop organization and administration. It is available only to seniors in agricultural education. Laboratory fee, \$3.00. (Glenger.)

Agr. Engr. 105. Farm Buildings (2).

First semester. A study of all types of farm structures; also of farm heating, water supply and sanitation systems. (Carpenter.)

Agr. Engr. 106. Farm Mechanics (2).

Second semester. Two laboratory periods a week. Laboratory exercises covering practical projects in farm shop work and in the repair and construction of farm equipment. Laboratory fee, \$3.00. (Gienger.)

Agr. Engr. 107. Farm Drainage (2).

Second semester. One lecture and one laboratory period a week. A study of farm drainage systems, including theory of tile under-drainage, and depth and spacing of

laterals, calculation of grades, methods of construction, and the use of engineering instruments. A smaller amount of time will be spent upon drainage by open ditches, and the laws relating thereto. (Carpenter.)

Agr. Engr. 109. Farm Applications of Electricity (2).

Second semester. One lecture and one laboratory period a week. This course covers the uses and applications of electricity on the farm and in the farm home. (George.)

Agr. Engr. 111. Mechanics of Food Processing (3).

First semester. Two lectures and one laboratory period a week. A basic study of mechanical principles and the practical application of these principles in the following phases of food processing; power generation and transmission, pumps, boilers, heat transfer, refrigeration, storage, and equipment controls. (Matthews.)

Agr. Engr. 112. Machinery and Equipment for Food Processing (2).

Second semester. One lecture and one laboratory period a week. Prerequisite, Agricultural Engineering III. This course covers the design, operation and maintenance of machines and equipment used in food processing and a study of the principles of efficient plant layout and management. (Matthews)

AGRONOMY—CROPS AND SOILS

Professors Kuhn and Street; Associate Professors Axley, Bourbeau and Ronningen; Assistant Professors Bentz, Decker, Santelmann and Strickling.

A. CROPS

Agron. 1. Crop Production (3).

Second semester. Two lectures and one laboratory period a week. Culture, use, improvement, adaptation, distribution, and history of field crops.

For Advanced Undergraduates

Agron. 101. Senior Seminar (1).

Second semester. Prerequisite, Agron. 1, 107, and 108. Reports by seniors on current scientific and practical publications pertaining to crops. (Ronningen.)

Agron. 153. Selected Crop Studies (1-2).

Second semester.. Prerequisite, Agron. 1, 107, 108. Advanced individual study of field crops of special interest to the student. (Staff.)

For Advanced Undergraduates and Graduates

Agron. 103. Crop Breeding (2).

First semester. Prerequisite, Zool. 104. The principles of breeding as applied to field crop plants and methods used in plant improvement. (Ronningen.)

Agron. 105. Tobacco Production (2).

First semester. Two lectures a week. Prerequisite, Agron. 1. A study of the history, adaptation, distribution, culture, and improvement of various types of tobacco, with special emphasis on problems in Maryland tobacco production. (Street.)

Agron. 106. Tobacco Production (2).

Second semester. Two lectures a week. Prerequisite, Agron. 1. A study of the physical and chemical factors associated with yield and quality of tobacco, stress being placed on the importance of soil, climate and fertilizers. (Street.)

Agron. 107. Cereal Crop Production (3).

First semester. Two lectures and one laboratory period a week. Study of the principles and practices of corn, wheat, oats, barley, rye, soybeans and buckwheat production. (Santelmann.)

Agron. 108. Forage Crop Production (3).

Second semester. Two lectures and one laboratory period a week. Study of the production and management of grasses and legumes for quality hay, silage and pasture. (Decker.)

Agron. 151. Cropping Systems (2).

Second semester. The coordination of information from various courses in the development of balanced cropping systems, appropriate to different objectives in various areas of the State and Nation. (———)

Agron. 152. Seed Production and Distribution (3).

Second semester. Two lectures and one laboratory (2 hours) period a week. Prerequisite, Agron. 1. (Not offered 1956-57.) A study of seed production, processing, and distribution; Federal and State seed control programs; seed laboratory analyses; release of new varieties and maintenance of foundation seed stocks. (Staff.)

Agron. 154. Weed Control in Field Crops (3).

First semester. Two lectures and one laboratory a week. Prerequisite, Agron. 1. (Not offered 1956-57.) A study of the use of cultural practices and chemical herbicides in the control of weeds in field crops and turf. (Santelmann.)

For Graduates**Agron. 201. Crop Breeding (2).**

Second semester. Prerequisite, permission of instructor. (Not offered 1956-57.) Similar to Agron. 103, but better adapted to graduate students and offering a wider range of choice of material to suit special cases. (Ronningen.)

Agron. 203. Crop Seminar (1, 1).

First and second semesters. Presentation of original work or review of literature on agronomic topics. (Staff.)

Agron. 204. Technic in Field Crop Research (2).

First semester. Field plot technic, application of statistical analysis to agronomic data, and preparation of the research project. (———)

Agron. 205. Biogenesis of Tobacco (2).

Second semester. Two lectures a week. Prerequisite, permission of instructor. A study of the structural adaptation of tobacco to environmental and experimental variations. (Street.)

Agron. 206, 207. Recent Advances in Crop Production (2, 2).

First semester. Two lectures a week. Prerequisite, permission of instructor. A study of recent advances in research techniques and findings pertaining to crop production. (Agron. 206; not offered in 1955-56.) (Decker, Ronningen, Street.)

Agron. 208. Research Methods (2-4).

Second semester. Prerequisite, permission of staff. Development of research viewpoint by detailed study and report on crop research of the Maryland Experiment Station or review of literature on specific phases of a problem. (Staff.)

Agron. 209. Research in Crops (1-8).

First and second semesters. Credit according to work accomplished. With approval or suggestion of the Professor in charge of his major work the student will choose his own problem for study. (Staff.)

Agron. S210. Cropping Systems (1).

Summer session only. An advanced course primarily designed for teachers of vocational agriculture and county agents. It deals with outstanding problems and the latest developments in the field. (———)

Agron. 211. Biosynthesis of Tobacco (2).

Second semester. Two lectures a week. Prerequisite, permission of instructor. (Not offered 1956-57.) A study of the composition of tobacco with emphasis on the alkaloids and other unique components. (Street.)

B. SOILS**Agron. 10. General Soils (4).**

Second semester. Three lectures and a two-hour laboratory period each week. Prerequisite, Chem. 1 or permission of instructor. A study of the fundamentals of soils including their origin, development, relation to natural sciences, effect on civilization, physical properties, and chemical properties. (Bentz.)

For Advanced Undergraduates and Graduates**Agron. S110. Soil Management (1).**

Summer school only. An advanced course primarily designed for teachers of Voc-

tional Agriculture and County Agents dealing with factors involved in management of soils in general and of Maryland soils in particular. Emphasis is placed on methods of maintaining and improving chemical, physical, and biological characteristics of soils. Illustrations with conservation practices receive particular attention. (Strickling.)

Agron. 111. Soil Fertility Principles (3).

Second semester. Three lectures a week. Prerequisite, Agron. 10. A study of the chemical, physical, and biological characteristics of soils that are important in growing crops. Soil deficiencies of physical, chemical or biological nature and their correction by the use of lime, fertilizers, and rotations are discussed and illustrated. (Strickling.)

Agron. 112. Commercial Fertilizers (3).

Second semester. Three lectures a week. Prerequisite, Agron. 10 or permission of instructor. A study of the manufacturing and distribution of commercial fertilizers. (Axley.)

Agron. 113. Soil Conservation (3).

First semester. Two lectures and one three-hour laboratory a week. Prerequisite, Agron. 10 or permission of instructor. A study of the importance and causes of soil erosion, and methods of soil erosion control. Special emphasis is placed on farm planning for soil conservation. The laboratory period will be largely devoted to field trips. (Bentz.)

Agron. 114. Soil Classification and Geography (4).

Second semester. Three lectures and one three-hour laboratory period a week. Prerequisite, Agron. 10, or permission of instructor. A study of the genesis, morphology, classification and geographic distribution of soils. The broad principles governing soil formation are explained. Attention is given to the influence of geographic factors on the development and use of soils in the United States and other parts of the world. The laboratory periods will be largely devoted to field trips and to a study of soil maps of various countries. (Bourbeau.)

Agron. 116. Soil Analysis for Plant Nutrients (3).

First semester. One hour lecture, one two-hour laboratory, and one three-hour laboratory a week. A study of chemical methods for soil analysis and their relation to fertilizer requirements of plants grown in soil. (Not offered in 1957-58.) (Axley.)

Agron. 117. Soil Physics (3).

First semester. Two lectures and one three-hour laboratory a week. Prerequisite, Agron. 10 and a course in Physics, or permission of instructor. (Not offered in 1957-58.) A study of physical properties of soils with special emphasis on relationship to soil productivity. (Strickling.)

Agron. 118. Special Problems in Soils (1).

First and second semesters. Prerequisite, Agron. 10 and permission of instructor. A detailed study, including a written report, of an important soil problem. (Staff.)

Agron. 119. Soil Mineralogy (4).

First semester. Two lectures and two two-hour laboratory periods a week. Prerequisite, permission of instructor. (Not offered in 1956-57.) A study of the funda-

mental laws and forms of crystal symmetry and essentials of crystal structure; structure, occurrence, association and uses of minerals, determination of minerals by means of their morphological, chemical and other physical properties. Particular attention is given to soil-forming minerals. Laboratory periods will be devoted to a systematic study of about 75 minerals. (Bourbeau.)

For Graduates

Agron. 250. Advanced Soil Mineralogy (3).

First semester. Three one-hour lectures a week. Prerequisite, Agron. 10, Agron. 119 and permission of instructor. (Not offered 1957-58.) A study of the structure, physical-chemical characteristics and identification methods of soil minerals, particularly the clay minerals, and their relationship to soil genesis and productivity. (Bourbeau.)

Agron. 251. Advanced Methods of Soil Investigation (3).

First semester. Three lectures a week. Prerequisite, Agron. 10 and permission of instructor. An advanced study of the theory of chemical methods of soil investigation with emphasis on problems involving application of physical chemistry. (Axley.)

Agron. 252. Advanced Soil Physics (3).

First semester. Two lectures and one three-hour laboratory a week. Prerequisites, Agron. 10 and permission of instructor. (Not offered 1955-56.) An advanced study of physical properties of soils with special emphasis on relationship to soil productivity. (Strickling.)

Agron. 253. Advanced Soil Analysis for Plant Nutrients (3).

First semester. One lecture, one two-hour laboratory and one three-hour laboratory a week. Prerequisite, permission of instructor. (Not offered 1955-56.) An advanced study of chemical methods for soil analysis and their relationship to fertilizer requirements of plants grown in soil. (Staff.)

Agron. 255. Soil Seminar (1, 1).

First and second semesters. Prerequisite, permission of instructor. (Staff.)

Agron. 256. Soil Research (1-12).

First and second semesters. (Staff.)

ANIMAL HUSBANDRY

Professors Foster, Green; Assistant Professors Buric, Leffel and Wingert

A. H. 1. Fundamentals of Animal Husbandry (3).

First semester. Two lectures and one laboratory period a week. A study of the general problems in breeding, feeding, management and marketing of beef cattle, sheep, swine and horses. Practice is given in the selection of animals to meet market demands. Field trips may be made to near-by farms and packing plants. (Staff.)

A. H. 30. Types and Breeds of Livestock (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite A. H. 1. A study of the various types and breeds of livestock, their development, characteristics and adaptability. Practice is given in selection according to standards of excellence. (Staff.)

A. H. 90. Livestock Judging (2).

Second semester. Two laboratory periods a week. Prerequisite, A. H. 30 or permission of instructor. Training is given in the judging of beef cattle, sheep, swine and horses. Occasional trips are made to farms where outstanding herds and flocks are maintained. (Buric.)

For Advanced Undergraduates**A. H. 100. Advanced Livestock Judging (2).**

First semester. Two laboratory periods a week. Prerequisite, A. H. 90 and permission of instructor. An advanced course in the selection and judging of purebred and commercial meat and work animals. The most adept students enrolled in this course are chosen to represent the University of Maryland in intercollegiate livestock judging contests. (Buric.)

A. H. 110. Feeds and Feeding (3).

First semester. Two lectures and one laboratory period a week. Prerequisites, Chem. 1, 3. Elements of nutrition; source, characteristics, and adaptability of the various feeds to the several classes of livestock; feeding standards; the calculation and compounding of rations. (Leffel.)

A. H. 130. Beef Cattle Production (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, A. H. 1, A. H. 110. Principles and practices underlying the economical production of beef cattle, including a study of the breeds and their adaptability; selection, breeding, feeding, management and marketing of purebred and commercial herds. (Foster.)

A. H. 131. Sheep Production (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites, A. H. 1, A. H. 110. Principles and practices underlying the economical production of sheep, including a study of the breeds and their adaptability; selection, breeding, feeding, management and marketing of purebred and commercial flocks. (Leffel.)

A. H. 132. Swine Production (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites, A. H. 1, A. H. 110. Principles and practices underlying the economical production of swine, including a study of the breeds and their adaptability; selection, breeding, feeding, management and marketing of purebred and commercial herds. (Wingert.)

A. H. 134. Light Horse Production (1).

First semester. One lecture a week. Prerequisite, A. H. 1. Study of the light horse breeds with emphasis on the types and usefulness of each. A discussion of principles of selection and breeding of light horses is included in this course. (Leffel.)

A. H. 135. Light Horse Production (1).

Second semester. One lecture a week. Prerequisite, A. H. 1. Included is a study of the organization of the light horse farm, proper methods of feeding and training, control of disease, treatment and care of injuries, sale of surplus stock. (Leffel.)

A. H. 140. Livestock Management (3).

Second semester. One lecture and two laboratory periods a week. Prerequisite, A. H. 110. A course designed to offer practical experience in working with livestock, especially to students who lack farm experience. Provides opportunities for students to learn practical methods of handling and managing beef cattle, sheep, and swine. Practice and training in fitting animals for shows and sales. (Burle.)

A. H. 160. Meat and Meat Products (3).

First semester. One lecture and two laboratory periods a week. Prerequisite, A. H. 1. Designed to give information on the processing and handling of the nation's meat supply. A study of the physical and structural qualities which effect the value of meat and meat products. Trips are made to packing houses and meat distributing centers. (Wingert.)

A. H. 170, 171. Seminar (1, 1).

First and second semesters. Prerequisite, permission of instructor. Advanced undergraduates will be required to review literature, present reports and discuss assigned topics relating to Animal Husbandry. (Staff.)

A. H. 172, 173. Special Problems in Animal Husbandry (1-2, 1-2).

First and second semesters. Work assigned in proportion to amount of credit. Prerequisite, approval of staff. A course designed for advanced undergraduates in which specific problems relating to Animal Husbandry will be assigned. (Staff.)

For Advanced Undergraduates and Graduates**A. H. 111. Animal Nutrition (3).**

First semester. Three lectures a week. Prerequisites, Chem. 31, 32, 33, 34; A. H. 110. Graduate credit allowed, with permission of instructor. Processes of digestion, absorption, and metabolism of nutrients; nutritional balances; nature of nutritional requirements for growth, production and reproduction. (Leffel.)

A. H. 120. Principles of Breeding (3).

Second semester. Three lectures a week. Prerequisite, Zool. 104 and A. H. 130 or A. H. 131 or A. H. 132 or Dairy 101. Graduate credit (1-3 hours), allowed with permission of instructor. The practical aspects of animal breeding, heredity, variation, selection, development, systems of breeding, and pedigree study are considered. (Green.)

A. H. S130. Beef Cattle (1).

Summer session only. This course is designed primarily for teachers of Vocational Agriculture and Extension Service Workers. Principles and practices underlying the economical production of beef cattle, including a study of the breeds and their adaptability; selection, breeding, feeding, management and marketing of purebred and commercial herds. (Foster.)

A. H. 150. Livestock Markets and Marketing (2).

First semester. Two lectures a week. Prerequisite, A. H. 1. Graduate credit allowed, with permission of instructor. History and development of livestock markets and systems of marketing; trends of livestock marketing; effect of changes in transportation and refrigeration facilities; the merchandising of meat products. (Wingert.)

For Graduates**A. H. 200, 201. Special Problems in Animal Husbandry (1-2, 1-2).**

First and second semesters. Work assigned in proportion to amount of credit. Prerequisite, approval of staff. Problems will be assigned which relate specifically to the characters of work the student is pursuing. (Staff.)

A. H. 202, 203. Seminar (1, 1).

First and second semesters. Students are required to prepare papers based upon current scientific publications relating to Animal Husbandry or upon their research work, for presentation before and discussion by the class. (Staff.)

A. H. 204. Research (1-6).

First and second semesters. Credit to be determined by amount and character of work done. With the approval of the head of the department, students will be required to pursue original research in some phase of Animal Husbandry, carrying the same to completion, and report the results in the form of a thesis. (Staff.)

A. H. 205. Advanced Breeding (2).

Second semester. Two lectures a week. Prerequisites, A. H. 120 or equivalent and Biological Statistics. This course deals with the more technical phases of heredity and variation; selection indices; breeding systems; inheritance in farm animals. (Green.)

A. H. 206. Advanced Livestock Management (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, approval of staff. An intensive study of the newer developments in animal breeding, animal physiology, animal nutrition, endocrinology, and other closely allied fields as they apply to the management and commercial production of livestock. (Staff.)

BOTANY

Professors Bamford, Gauch, Cox, Weaver, Appleman (emeritus), Norton, (emeritus); Associate Professors Brown, D. T. Morgan; Assistant Professors O. D. Morgan, Rappleye, Krauss, Sisler, Jenkins; Instructor Kantzes

Bot. 1. General Botany (4).

First and second semesters. Summer. Two lectures and two laboratory periods a week. General introduction to botany, touching briefly on all phases of the subject. Emphasis is on the fundamental biological principles of the higher plants. Laboratory fee, \$5.00.

Bot. 2. General Botany (4).

Second semester. Two lectures and two laboratory periods a week. Prerequisite, Bot. 1 or equivalent. A brief evolutionary study of algae, fungi, liverworts, mosses, ferns and their relatives, and the seed plants emphasizing their structure, reproduction, habitats, and economic importance. Laboratory fee, \$5.00.

Bot. 11. Plant Taxonomy (3).

Second semester. One lecture and two laboratory periods a week. Prerequisite, Bot. 1, or equivalent. A study of the principles of plant classification, based on the collection and identification of local plants. Laboratory fee, \$5.00.

Bot. 20. Diseases of Plants (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 1, or equivalent. An introductory study of the symptoms and causal agents of plant diseases and measures for their control. Laboratory fee, \$5.00.

For Advanced Undergraduates**Bot. 110. Plant Microtechnique (3).**

Second semester. One lecture and two laboratory periods a week. Prerequisite, Bot. 1. Principles and methods involved in the preparation of permanent microscope slides of plant materials. Laboratory fee, \$5.00. (Rappleye.)

Bot. 112. Seminar (1).

First and second semesters. Prerequisite, permission of instructor. Discussion of special topics, current literature, problems and programs in all phases of botany. For seniors only, majors and minors in botany or biological science. (Brown.)

A. Plant Physiology**For Advanced Undergraduates and Graduates****Bot. 101. Plant Physiology (4).**

First semester. Two lectures and two laboratory periods a week. Prerequisites, Bot. 1 and General Chemistry. A survey of the general physiological activities of plants. Laboratory fee, \$5.00. (Gauch.)

Bot. 102. Plant Ecology (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 11, or equivalent. A study of plants in relation to their environments. Plant successions and formations of North America are treated briefly and local examples studied. Laboratory fee, \$5.00. (Brown.)

For Graduates**Bot. 201. Plant Biochemistry (4).**

First semester. Two lectures and two laboratory periods a week. Prerequisites,

Bot. 101 and elementary organic chemistry, or equivalent. A study of the important substances in the composition of the plant body and the chemical changes occurring therein. Laboratory fee, \$10.00. (Gauch.)

Bot. 202. Plant Biophysics (2).

Second semester. Prerequisite, Bot. 101 and introductory physics, or equivalent. (Not offered 1956-1957.) An advanced course dealing with the operation of physical phenomena in plant life processes.

Bot. 203. Biophysical Methods (2).

Second semester. Two laboratory periods a week. Laboratory course to accompany Bot. 202. Laboratory fee, \$10.00. (Not offered 1956-1957.)

Bot. 204. Growth and Development. (2).

First semester. Prerequisite, 12 semester hours of plant science. (Not offered 1956-1957.) (Krauss.)

Bot. 205. Mineral Nutrition of Plants (2).

Second semester. Reports on current literature are presented and discussed in connection with recent advances in the mineral nutrition of plants. (Gauch.)

Bot. 206. Research in Plant Physiology.

Credit according to work done. Students must be qualified to pursue with profit the research to be undertaken. (Gauch, Krauss.)

Bot. 207. Special Topics in Plant Physiology (2).

Second semester. Prerequisite, permission of instructor. This course on highly specialized subjects, usually will be presented by a specialist who is available at a neighboring institution.

Bot. 208. Seminar in Plant Physiology (1).

First and second semesters. Prerequisite, permission of instructor. Discussion of special topics in plant physiology. (Gauch, Krauss.)

Bot. 209. Physiology of Algae (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 201, the equivalent in allied fields, or permission of the instructor. A study of the physiology and comparative biochemistry of the algae. Laboratory techniques and recent advances in algal nutrition, photosynthesis, and growth will be reviewed. Laboratory fee, \$10.00. (Krauss.)

B. Plant Morphology and Taxonomy

For Advanced Undergraduates and Graduates

Bot. 111. Plant Anatomy (3).

First semester. One lecture and two laboratory periods a week. Prerequisite, Bot.

110, or equivalent. The origin and development of the organs and tissue systems in the vascular plants. Laboratory fee, \$5.00. (Rappleye.)

Bot. 113. Plant Geography (2).

First semester. Prerequisite, Bot. 1, or equivalent. A study of plant distribution throughout the world and the factors generally associated with such distribution. (Brown.)

Bot. 114. Advanced Plant Taxonomy (3).

First semester. One lecture and two laboratory periods a week. Prerequisite, Bot. 11, or permission of instructor. Principles and criteria of systematic botany. Study of difficult plant groups, especially grasses, sedges, legumes and composites with collection and identification of native species. Laboratory fee, \$5.00. (Brown.)

Bot. 115. Structure of Economic Plants (3).

Second semester. One lecture and two laboratory periods a week. Prerequisite, Bot. 111. A detailed microscopic study of the anatomy of the chief fruit and vegetable crops. Laboratory fee, \$5.00. (Rappleye.)

Bot. 116. History and Philosophy of Botany (1).

First semester. Prerequisite, 15 semester hours of botany. Discussion of the development of ideas and knowledge about plants, leading to a survey of contemporary work in botanical science. (Bamford.)

Bot. 117. Plant Breeding (2).

Second semester. Prerequisite, Zool. 104 or equivalent. A survey of the fundamental principles to modern plant breeding. The analysis of hybrid vigor, its application to economic plants, the relation of chromosomes to plant improvement, economically valuable mutations and similar topics will be considered. (D. T. Morgan.)

Bot. 135. Aquatic Plants (3).

First semester. One lecture and two laboratory periods a week. Prerequisite, Bot. 1 and Bot. 11, or equivalent. (Not offered 1956-1957.) A study of the taxonomy and ecology of aquatic plants, especially those of importance in fisheries and wild life management. Field trips and collections will be made. Laboratory fee, \$5.00.

Bot. 136. Plants and Mankind (2).

First semester. Summer 1956. Prerequisite, Bot. 1 or equivalent. A survey of the plants which are utilized by man; the diversity of such utilization, and their historic and economic significance. (Rappleye.)

Bot. 151S. Teaching Methods in Botany (2).

Summer. Five two-hour laboratory and demonstration periods per week; 10:00-11:00; E-307. Prerequisite, Bot. 1, or equivalent. Laboratory fee, \$5.00. A study of the biological principles of common plants, and demonstrations, projects, and visual aids suitable for teaching in primary and secondary schools. (Owens.)

For Graduates

Bot. 211. Cytology (4).

First semester. Two lectures and two laboratory periods a week. Prerequisite, Zool. 104 (Genetics) or equivalent. A detailed study of the chromosomes in mitosis and meiosis, and the relation of these to current theories of heredity and evolution. Laboratory fee, \$10.00. (Bamford, D. T. Morgan.)

Bot 212. Plant Morphology (3).

First semester. One lecture and two laboratory periods a week. Prerequisites, Bot. 11, Bot. 111, or equivalent. A comparative study of the morphology of the flowering plants, with special reference to the phylogeny and development of floral organs. Laboratory fee, \$5.00. (Rappleye.)

Bot. 213. Seminar in Plant Cytology and Morphology (1).

First and second semesters. Prerequisite, permission of instructor. Discussion of special topics in plant morphology, anatomy, and cytology. (D. T. Morgan, Rappleye.)

Bot. 214. Research in Plant Cytology and Morphology.

Credit according to work done. (Bamford, D. T. Morgan, Rappleye.)

Bot. 215. Plant Cytogenetics (3).

First semester. Two lectures and one laboratory period a week. Prerequisites, Zool. 104, (Genetics) or equivalent. (Not offered 1956-1957.) An advanced study of the current status of plant genetics, particularly gene mutations and their relation to chromosome changes in corn and other favorable genetic materials. Laboratory fee, \$10.00. (D. T. Morgan.)

Bot. 219. Special Topics in Plant Morphology and Cytology (2).

First semester. Prerequisite permission of instructor. This course treats specialized subjects very intensively. It will usually be given by a lecturer from a neighboring institution.

C. Plant Pathology

For Advanced Undergraduates and Graduates

Bot. 122. Research Methods in Plant Pathology (2).

First or second semester. Two laboratory periods a week. Prerequisite, Bot. 20, or equivalent. Advanced training in the basic research techniques and methods of plant pathology. Laboratory fee, \$5.00 each semester. (Cox.)

Bot. 123. Diseases of Ornamental Plants (2).

Second semester. Prerequisite, Bot. 20, or equivalent. (Not offered 1956-1957.) Symptoms, control measures, and other pertinent information concerning the diseases which affect important ornamental plants grown in the eastern states.

Bot. 124. Diseases of Tobacco and Agronomic Crops (2).

First semester. Prerequisite, Bot. 20, or equivalent. The symptoms and control of the diseases of tobacco, forage crops and cereal grains. (O. D. Morgan.)

Bot. 125. Diseases of Fruit Crops (2).

First semester. Prerequisite, Bot. 20, or equivalent. (Not offered 1956-1957.) Symptoms and control of the diseases affecting fruit production in the eastern United States. (Weaver.)

Bot. 126. Diseases of Vegetable Crops (2).

Second semester. Prerequisite, Bot. 20, or equivalent. The recognition and control of diseases affecting the production of important vegetable crops grown in the eastern United States. (Cox.)

Bot. 128. Mycology (4).

Second semester. Two lectures and two laboratory periods a week. Prerequisite, Bot. 2, or equivalent. An introductory study of the morphology, classification, life histories, and economics of the fungi. Laboratory fee, \$5.00.

Bot. 152S. Field Plant Pathology (1).

Summer. Daily lecture first three weeks, 8:00; E-307. Prerequisite, Bot. 20, or equivalent. Laboratory fee, \$5.00. (Not offered 1956.) A course for county agents and teachers of vocational agriculture. Discussion and demonstration of the important diseases in Maryland crops. (Cox and Staff.)

For Graduates**Bot. 221. Virus Diseases (3).**

Second semester. Two lectures and one laboratory period a week. Prerequisites, Bot. 20 and Bot. 101. Laboratory fee, \$10.00. Consideration of the physical, chemical and physiological aspects of plant viruses and plant diseases. (Sisler.)

Bot. 223. Physiology of Fungi (2).

First semester. Prerequisites, Organic Chemistry and Bot. 101 or the equivalent in bacterial or animal physiology. A study of various aspects of fungal metabolism, nutrition, biochemical transformations, fungal products, and mechanism of fungicidal action. (Sisler.)

Bot. 224. Physiology of Fungi Laboratory (1).

First semester. One laboratory period per week. Prerequisite, Bot. 223 or concurrent registration therein. (Not offered 1956-1957.) Application of equipment and techniques in the study of fungal physiology. Laboratory fee, \$10.00. (Sisler.)

Bot. 225. Research in Plant Pathology.

Credit according to work done.

(Staff.)

Bot. 226. Plant Disease Control (3).

First semester. Prerequisite, Bot. 20, or equivalent. An advanced course dealing with the theory and practices of plant disease control. (Cox.)

Bot. 228. Special Topics in Plant Pathology (2).

Second semester. Prerequisite, permission of instructor. This course on very specialized phases of plant pathology will usually be given by a lecturer from a neighboring institution.

Bot. 229. Seminar in Plant Pathology (1).

First and second semesters. Discussion on the advanced technical literature of plant pathology. (Cox.)

Bot. 241. Plant Nematology (2).

First semester. Prerequisite, permission of instructor. (Not offered 1956-1957.) A detailed study of the nematodes which cause plant diseases, especially their life histories, plant symptoms and control measures. (Jenkins.)

Bot. 242. Plant Nematology Laboratory (1).

First semester. One laboratory period a week. Prerequisite, Bot. 241 or concurrent registration therein. (Not offered 1956-1957.) Techniques in collection and identification of plant-parasitic nematodes. Laboratory fee, \$10.00. (Jenkins.)

DAIRY

Professors Beck, Arbuckle, and Shaw; Associate Professors Mattick and Keeney; Assistant Professor Davis; Instructor Seely

A. DAIRY HUSBANDRY**Dairy 1. Fundamentals of Dairying (3).**

Second semester. Two lectures and one laboratory period a week. This course is designed to cover the entire field of dairying. The content of the course deals with all phases of dairy cattle feeding, breeding and management and the manufacturing processing, distribution and marketing of dairy products. Laboratory fee, \$3.00. (Beck, Mattick.)

Dairy 10. Dairy Cattle Management (1).

First semester. One laboratory period a week. Prerequisite, Dairy 1. A management course designed to familiarize students with the practical handling and management of dairy cattle. Students are given actual practice and training in the University dairy barns. (Beck.)

Dairy 20. Dairy Breeds and Selection (2).

First semester. One lecture and one laboratory period a week. A detailed study of the dairy breeds, factors which have contributed to the success and failure of modern breeding establishments and standards of excellence in the selection of breeding cattle. (Davis.)

Dairy 30. Dairy Cattle Judging (2).

Second semester. Two laboratory periods a week. This course offers complete instruction in the selection and comparative judging of dairy cattle. Trips to various dairy farms for judging practice will be made. (Beck.)

For Advanced Undergraduates and Graduates

Dairy 101. Dairy Production (3).

First semester. Two lectures and one laboratory period a week. Prerequisites, Dairy 1, A. H. 110. A comprehensive course in dairy cattle nutrition feeding, and herd management. (Davis.)

Dairy 103. Physiology of Milk Secretion (3).

Second semester. Two lectures and one laboratory period per week. Prerequisites, Zool. 1, Organic Chemistry. (Alternate years, given in 1955-1956.) The anatomy, evolution and metabolism of the mammary gland including hormonal control and the biosynthesis of milk constituents. (Shaw.)

Dairy 105. Dairy Cattle Breeding (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites, Dairy 1, Zool. 104. A specialized course in breeding dairy cattle. Emphasis is placed on methods of sire evaluation systems of breeding, breeding programs, and artificial breeding techniques. (Beck.)

Dairy 120, 121. Dairy Seminar (1, 1).

First and second semesters. Prerequisites, students majoring in dairy production, Dairy 101; students majoring in dairy products technology, Dairy 108. Presentation and discussion of current literature and research work in dairying. (Staff.)

Dairy 124. Special Problems in Dairying A (1-4).

First and second semesters. Prerequisite, Dairy 101. Credit in accordance with the amount and character of work done. Special problems will be assigned which relate specifically to the work the student is pursuing. (Staff.)

B. DAIRY TECHNOLOGY**Dairy 40. Grading Dairy Products (2).**

Second semester. Two laboratory periods a week. Market grades and the judging of milk, butter, cheese, and ice cream. Laboratory fee, \$3.00. (Arbuckle.)

Dairy 41. Advanced Grading of Dairy Products (1).

First semester. Prerequisite, Dairy 40. An advanced course in grading and judging of milk, butter, cheese, and ice cream. Open to students who participate in training for intercollegiate dairy products judging contests. Laboratory fee, \$3.00. (Arbuckle.)

For Advanced Undergraduates and Graduates

Dairy 108. Dairy Technology (4).

First semester. Two lectures and two laboratory periods a week. Prerequisites, Dairy 1, Bact. 133, Chem. 1, 3. Composition standards for milk and milk products, critical interpretation and application of practical factory methods of analyses for fat and solids; quality tests. Laboratory fee, \$3.00. (Mattick.)

Dairy 109. Market Milk (4).

First semester. Two lectures and two laboratory periods a week. Prerequisites, Dairy 1, Bact. 133, Chem. 1, 3. Commercial aspects of the market milk industry relating to transportation, processing, and distribution; operation of a market milk plant; quality problems; chocolate milk, buttermilk and cottage cheese. Laboratory fee, \$3.00.

(Arbuckle.)

Dairy 110. Butter and Cheese Making (4).

Second semester. One lecture and one five-hour laboratory period a week. Prerequisites, Dairy 1, Bact. 1, Chem. 1, 3. (Alternate years, not given in 1954-1955.) Commercial methods of manufacturing butter and cheese. Consideration is given to the physical, chemical, and biological factors involved; procedures of manufacture; quality control. Laboratory fee, \$3.00.

(Mattick.)

Dairy 111. Concentrated Milk Products (3).

Second semester. One lecture and one five-hour laboratory period a week. Prerequisites, Dairy 108, 114. (Alternate years, not given in 1954-1955.) Theories and practice of manufacturing condensed and evaporated milk and milk powder; plant processes; quality factors; utilization. Laboratory fee, \$3.00.

(Mattick.)

Dairy 112. Ice Cream Making (4).

Second semester. Two lectures and two laboratory periods a week. Prerequisite, Dairy 108. The ice cream industry; commercial methods of manufacturing ice cream; fundamental principles; ingredients; controlling quality. Laboratory fee, \$3.00.

(Arbuckle.)

Dairy 114. Special Laboratory Methods (4).

Second semester. Two lectures and two laboratory periods a week. Prerequisites, Dairy 108, Bact. 133, Chem. 19, 31, 32, 33, 34. Application of analytical methods to milk, milk products and milk constituents. Laboratory fee, \$3.00.

(Keeney.)

Dairy 115. Quality Control in the Dairy Industry (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Dairy 109. Application of quality control methods in relation to dairy ordinances, standards and farm and plant inspection. Laboratory fee, \$3.00.

(Mattick.)

Dairy 116. Dairy Plant Management (3).

Second semester. Two lecture periods and one three-hour laboratory period per week. Prerequisites, at least three advanced dairy products technology courses. Principles of dairy plant management, record systems; personnel, plant design and construction; dairy machinery and equipment.

(Mattick.)

Dairy 124. Special Problems in Dairying B (1-4).

First and second semesters. Prerequisites, Dairy 108, 109. Credit in accordance with the amount and character of work done. Special problems will be assigned which relate specifically to the work the student is pursuing.

(Staff.)

For Graduates in Dairy Husbandry and Dairy Technology**Dairy 201. Advanced Ruminant Nutrition (3).**

First semester. Three one-hour lectures per week. Prerequisites, A. H. 110 or Dairy 101, Organic Chemistry and permission of Department. (Alternate years, given in 1956-1957.) Biochemical, physiological and bacteriological aspects of the nutrition of ruminants and other animals. (Shaw and Davis.)

Dairy S201. Advanced Dairy Production (1).

Summer session only. An advanced course primarily designed for teachers of vocational agriculture and county agents. It includes a study of the newer discoveries in dairy cattle nutrition, breeding and management. (Staff.)

Dairy 202. Advanced Dairy Technology (3).

First semester. Prerequisite, Dairy 108, 114 or equivalent. Milk and milk products from physico-chemical and bio-chemical points of view, with attention directed to hydrogen ion concentration, electrometric titration, oxidation-reduction, electrometric conductivity, buffer system of milk, milk enzymes. (Keeney.)

Dairy 204. Special Problems in Dairying (1-5).

First and second semesters. Prerequisite, permission of Professor in charge of work. Credit in accordance with the amount and character of work done. Methods of conducting dairy research and the presentation of results are stressed. A research problem which relates specifically to the work the student is pursuing will be assigned. (Staff.)

Dairy 205. Seminar (1).

First semester. Assigned readings on current literature on timely topics; preparation and presentation of reports for classroom discussion. (Staff.)

Dairy 206. Advanced Dairy Research Seminar (1)

Second semester. Discussion of fundamental research in Dairy Science.

Dairy 208. Research (1-8).

First and second semesters. Credit to be determined by the amount and quality of work done. Original investigation by the student of some subject assigned by the Major Professor, the completion of the assignment and the preparation of a thesis in accordance with requirements for an advanced degree. (Staff.)

ENTOMOLOGY

Professor Cory; Associate Professor Bickley; Assistant Professors Abrams, Haviland; Lecturers Munson, Sailer, Shepard.

Ent. 1. Introductory Entomology (3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisite, one semester of college Zoology. Laboratory fee, \$3.00. The position of insects

in the animal kingdom, their gross structure, classification into orders and principal families and the general economic status of insects. A collection of common insects is required.

Ent. 2. Insect Morphology (3).

First semester. One lecture and two laboratory periods a week. Prerequisite, Ent.

1. Laboratory fee, \$3.00. Intensive study of the external structures and less intensive study of the internal anatomy of representative insects with special reference to those phases needed for work in insect taxonomy and biology.

Ent. 3. Insect Taxonomy (3).

Second semester. One lecture and two laboratory periods a week. Prerequisite, Ent.

2. Laboratory fee, \$3.00. Intensive study of the classification of all orders and the important families based on individual collections supplemented by typical material from the department collection.

Ent. 4. Beekeeping (2).

First semester. A study of the life history, behavior and seasonal activities of the honey-bee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature.

Ent. 11S. Entomology in Nature Study (3).

Summer. Two lectures and three two-hour laboratory periods per week. (Not offered in 1956.) This course is designed to help teachers utilize insects in their teaching. The general availability of insects makes them especially desirable for use in nature study courses. Teachers should be acquainted, therefore, with the simplest and easiest ways to collect, rear, preserve, and identify the common insects about which students are constantly asking questions.

For Advanced Undergraduates and Graduates

Ent. 100. Advanced Apiculture (3).

Second semester. One lecture and two three-hour laboratory periods. Prerequisite, Ent. 4. Laboratory fee, \$3.00. The theory and practice of apiary management. Designed for the student who wishes to keep bees or requires a practical knowledge of bee management. (Abrams.)

Ent. 101. Economic Entomology (3).

Second semester. Prerequisite, consent of the department. An intensive study of the theory and problems of applied entomology, including life history, ecology, behavior, distribution, parasitism and control.

Ent. 105. Medical Entomology (3).

First semester. Two lectures and one two-hour laboratory period a week. Prerequisite, Ent. 1, or consent of the department. Laboratory fee, \$3.00. A study of insects and related arthropods that affect the health and comfort of man directly and as vectors of disease. In discussions of the control of such pests the emphasis will be upon community sanitation. (Bickley.)

Ent. 106. Advanced Insect Taxonomy (3).

First semester. Two three-hour laboratory periods a week. Prerequisite, Ent. 3. Laboratory fee, \$3.00. Principles of systematic entomology and intensive study of limited groups of insects, including immature forms. (Bickley.)

Ent. 107. Insecticides (2).

Second semester. Prerequisite, consent of the department. The development and use of contact and stomach poisons, fumigants and other important chemicals, with reference to their chemistry, toxic action, compatibility, and host injury. Recent research emphasized. (Shepard.)

Ent. 109. Insect Physiology (2).

Second semester. Two lectures and occasional demonstrations. Prerequisite, consent of the department. The functioning of the insect body with particular reference to blood, circulation, digestion, absorption, excretion, respiration, reflex action and the nervous system, and metabolism. (Munson.)

Ent. 110, 111. Special Problems (1, 1).

First and second semesters. Prerequisites, to be determined by the department. May be taken concurrently. An intensive investigation of some entomological problem, preferably of the student's choice. Required of majors in entomology. (Cory and Staff.)

Ent. 112. Seminar (1, 1).

First and second semesters. Prerequisite, senior standing. Presentation of original work, reviews and abstracts of literature. (Cory and Staff.)

Ent. 113. Entomological Literature (1).

Second semester. Prerequisite, junior standing. (Not offered in 1956-57.) A study of entomological publications and good scientific writing. Preparation of bibliographies. (Bickley.)

Ent. 115. Quarantine Procedures (2).

First semester. Prerequisite, consent of the department. (Not offered in 1956-57.) Lectures on the principles and procedures involved in preventing the introduction of foreign pests and the limitation of spread of endemic or introduced pests.

Ent. 116. Insect Pests of Ornamentals and Greenhouse Plants (3).

Second semester. Two lectures and one two-hour laboratory period a week. Prerequisite, Ent. 1 or consent of the department. Laboratory fee, \$3.00. The recognition, biology, and control of insects injurious to plants grown in ornamental plantings, nurseries, and under glass. (Haviland.)

Ent. 117. Insect Pests of Field Crops and Stored Products (2).

First semester. One lecture and one two-hour laboratory period a week. Prerequisite, Ent. 1 or consent of the department. Laboratory fee, \$3.00. The recognition, biology and control of insects injurious to corn, small grains, legumes, cotton, tobacco, stored grains, seeds and cereal products. (Cory and Bickley.)

Ent. 118. Insect Pests of Fruit and Vegetable Crops (3).

Second semester. Two lectures and one two-hour laboratory period a week. Prerequisite, Ent. 1 or consent of the department. Laboratory fee, \$3.00. (Not offered in 1956-57.) The recognition, biology and control of insects injurious to important fruit and vegetable crops. (Cory and Bickley.)

Ent. 119. Insect Pests of Domestic Animals (2).

First semester. One lecture and one two-hour laboratory period a week. Prerequisite, Ent. 1 or consent of the department. Laboratory fee, \$3.00. The recognition, biology, and control of insects and related arthropods injurious to horses, cattle, hogs, sheep, goats, and poultry. (Haviland.)

For Graduates**Ent. 201. Advanced Entomology.**

Credit and prerequisites to be determined by the department. First and second semesters. Studies of minor problems in morphology, taxonomy and applied entomology, with particular reference to the preparation of the student for individual research. (Cory and Staff.)

Ent. 202. Research.

First and second semesters. Required of graduate students majoring in Entomology. This course involves research on an approved project. A dissertation suitable for publication must be submitted at the conclusion of the studies as a part of the requirements for an advanced degree. (Cory and Staff.)

Ent. 203. Advanced Insect Morphology (2).

Second semester. One lecture and one three-hour laboratory period a week. Laboratory fee, \$3.00. Insect structure with special reference to function. Emphasis on internal anatomy. Given in preparation for advanced work in physiology or research in morphology. (Bickley.)

Ent. 205. Insect Ecology (2).

First semester. One lecture and one two-hour laboratory period a week. Prerequisite, consent of the department. Laboratory fee, \$3.00. A study of fundamental factors involved in the relationship of insects to their environment. Emphasis is placed on the insect as a dynamic organism adjusted to its surroundings. (Saller.)

Ent. 206. Bionomics of Mosquitoes (2).

Second semester. One lecture and one three-hour laboratory period a week. Laboratory fee, \$3.00. (Alternates with Ent. 203; not offered in 1956-1957.) The classification, distribution, ecology, biology, and control of mosquitoes. (Bickley.)

FORESTRY

Assistant Professor Enright

For. 30. Elements of Forestry (3).

Second semester. Prerequisite, Bot. 1. A general survey of the field of forestry,

including timber values, conservation, protection, silviculture, utilization, mensuration, engineering, recreation and lumbering. Principles and practices of woodland management.

HORTICULTURE

Professors Haut, Kramer, Link, Scott, Stark, Thompson, Associate Professors Shanks, Shoemaker; Assistant Professors Britton, Enright, Reynolds, Wiley; Instructor Todd.

Hort. 1. General Horticulture (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 1. A general basic course planned to give the student a background of methods and practices used in production of horticulture crops.

Hort. 5, 6. Fruit Production (3, 2).

First and second semesters. One or two lectures and one laboratory period a week. Courses must be taken in sequence. Prerequisite, Bot. 1. A study of commercial varieties and the harvesting, grading, and storage of fruits. Principles and practices in fruit tree production.

Hort. 11. Greenhouse Management (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 1. A detailed study of greenhouse construction and management.

Hort. 16. Garden Flowers (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 1. The various species of annuals, herbaceous perennials, bulbs, bedding plants, and roses and their cultural requirements.

Hort. 22. Landscape Gardening (2).

First semester. The theory and general principles of landscape gardening and their application to private and public areas.

Hort. 56. Landscape Ornamentals and Floriculture (2).

Second semester. One lecture and one laboratory period a week. A course dealing with the basic principles in the use of trees, shrubs, broad-leaved evergreens, annual and perennial flowering plants in ornamental plantings. Designed for any students wishing a broad coverage in this field.

Hort. 58. Vegetable Production (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 1. A study of the principles and practices of commercial vegetable production.

Hort. 59. Small Fruits (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Bot.

1. A study of the principles and practices involved in the production of small fruits including grapes, strawberries, raspberries, blackberries, and cranberries.

Hort. 61. Processing Industries (1).

Second semester. Early history and development of the various types of preservation of horticultural crops, such as canning, freezing, dehydration, pickling or brining. The relative importance of these methods on state, national and world-wide bases are emphasized.

Hort. 62. Plant Propagation (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Bot. 1. A study of principles and practices of propagation of horticultural plants.

Hort. 63. Flower Store Management (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, Hort. 11. Laboratory fee, \$5.00. A study of the operation and management of a flower store. Laboratory period devoted to principles and practice of floral arrangements and decoration.

For Advanced Undergraduates

Hort. 118, 119. Seminar (1, 1).

First and second semesters. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of horticulture. (Staff.)

Hort. 121. Plant Operations (2).

First semester. One lecture and one laboratory period a week. Prerequisites, Agr. Engr. 111, 112, Hort. 155. Course deals with arrangement of machinery and equipment in proper sequence to insure the most economical operation of commercial processing plants, providing for continuous flow through the factory. Field trips to commercial plants included. (Wiley.)

Hort. 152. Landscape Design (3).

First semester. One lecture and two laboratory periods a week. Prerequisites, Hort. 22, Eng. D. 1. Prerequisite or concurrently Hort. 107. A consideration of the principles of landscape design supplemented by direct application in the drafting room. (Shoemaker.)

Hort. 153. Landscape Design (3).

Second semester. Three laboratory periods a week. Prerequisite, Hort. 152. Advanced landscape design. (Shoemaker.)

Hort. 160. Landscape Maintenance (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites or concurrently, Hort. 107, 108. A study of the planting and maintenance of turf, ornamental shrubs and trees. Basic principles of park and estate maintenance included. (Enright.)

For Advanced Undergraduates and Graduates

Hort. 101, 102. Technology of Fruits (2, 2).

First and second semesters. Prerequisites, Hort. 6; Bot. 101. A critical analysis of research work and application of the principles of plant physiology, chemistry, and botany to practical problems in commercial production. (Thompson.)

Hort. 103, 104. Technology of Vegetables (2, 2).

First and second semesters. Prerequisites, Hort. 58; Bot. 101. For a description of these courses see the general statement under Hort. 101, 102. (Stark.)

Hort. 105. Technology of Ornamentals (2).

First semester. Prerequisite, Bot. 101. A study of the physiological plant processes as related to the growth, flowering, and storage of floriculture and ornamental plants. (Link.)

Hort. 106. World Fruits and Nuts (2).

Second semester. Prerequisite, Bot. 1. A study of the tropical and subtropical fruits and nuts of economic importance. (Haut.)

Hort. 107, 108. Plant Materials (3, 3).

First and second semesters. Prerequisite, Bot. 11. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. (Enright.)

Hort. 114. Systematic Pomology (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Hort. 5. 6. A study of the origin, history, taxonomic relationships, and description of fruits. (Haut.)

Hort. S115. Truck Crop Management (1).

Summer session only. Primarily designed for teachers and vocational agriculture and extension agents. Special emphasis will be placed upon new and improved methods of production of the leading truck crops. Current problems and their solution will receive special attention.

Hort. 116. Systematic Olericulture (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Hort. 58. A study of the classification and nomenclature of vegetable crops. (Reynolds.)

Hort. 122. Special Problems (2, 2).

First and second semesters. Credit arranged according to work done. For major students in horticulture or botany. (Sta.)

Hort. 123. Grades and Standards for Canned and Frozen Products (2).

Second semester. One lecture and one laboratory period a week. Prerequisite, 124. Factors considered in grading. Actual grading of principal products and critical appraisal for quality improvement.

Hort. 124. Quality Control (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, Hort. 58, 153, 156. This course covers the principles involved in the evaluation of factors of quality in processed foods including appearance, kinesthetic flavor and sanitation factors, and statistical presentation of results. (Kramer.)

Hort. S124. Tree and Small Fruit Management (1).

Summer session only. Primarily designed for vocational agriculture teachers and county agents. Special emphasis will be placed upon new and improved commercial methods of production of the leading tree and small fruit crops. Current problems and their solution will receive special attention.

Hort. S125. Ornamental Horticulture (1).

Summer session only. A course designed for teachers of agriculture, home demonstration agents and county agents. Special emphasis will be given to the development of lawns, flowers and shrubbery to beautify rural homes.

Hort. 126. Nutritional Analyses of Processed Crops (2).

Second semester. Two laboratory periods a week. Prerequisites, Chem. 33 and 34, Bot. 101, Hort. 123. Laboratory practice in standard methods for determining mineral, vitamin, carbohydrate, protein and other food values of various fruit and vegetable products.

Hort. 150, 151. Commercial Floriculture (3, 3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisites, Hort. 11. Growing and handling bench crops and potted plants, and the marketing of cut flowers. (Link.)

Hort. 155. Commercial Processing I (3).

First semester. Two lectures and one laboratory period a week. Prerequisites, Chem. 32, 34, Hort. 61. Laboratory fee, \$5.00. The fundamentals of canning, freezing, and dehydration of horticultural crops. (Wiley.)

Hort. 156. Commercial Processing II (2).

Second semester. One lecture and one laboratory period a week. Prerequisite, Hort. 155. A continuation of Commercial Processing I. Also includes actual work in laboratory of manufacture of jams, jellies, conserves, preserves, marmalades, and juices. (Wiley.)

Hort. 159. Nursery Management (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites or concurrently, Hort. 62, 107, 108. A study of all phases of commercial nursery management and operations. (Enright.)

For Graduates**Hort. 200—Experimental Procedures in Plant Sciences (3).**

First semester. Prerequisite, permission of instructor. Organization of research

projects and presentation of experimental results in the field of biological science. Topics included will be: Sources of research financing, project outline preparation, formal progress reports, public and industrial supported research programs, and technical and popular presentation of research data. (Haut.)

Hort. 201, 202. Experimental Pomology (3, 3).

First and second semesters. Prerequisite, Bot. 101. A systematic review of scientific knowledge and practical observations as applied to commercial practices in pomology. (Thompson.)

Hort. 203, 204. Experimental Olericulture (2, 2).

First and second semesters. Prerequisite, Bot. 101. A systematic review of scientific knowledge and practical observations as applied to commercial practices in olericulture. (Stark.)

Hort. 205. Experimental Olericulture (2).

First semester. Prerequisite, Bot. 101. (Not offered in 1956-57.) A systematic review of scientific knowledge and practical observations as applied to commercial practices in olericulture. (Stark.)

Hort. 206. Experimental Floriculture (3).

First semester. Prerequisite, Bot. 101. A systematic review of scientific knowledge and practical observations as applied to commercial practices in floriculture. (Link.)

Hort. 207. Methods of Horticultural Research (3).

Second semester. One lecture and one four-hour laboratory period a week. A critical study of research methods which are or may be used in horticulture. (Scott.)

Hort. 208. Advanced Horticultural Research (2-12).

First and second semesters. Credit granted according to work done. (Staff.)

Hort. 209. Advanced Seminar (1, 1).

First and second semesters. Five credit hours for five semesters can be obtained. Oral reports with illustrative material are required on special topics or recent research publications in horticulture. (Haut. and Staff.)

Hort. 210. Experimental Processing (2).

Second semester. Prerequisite, permission of instructor. A systematic review of scientific knowledge and practical observations as applied to commercial practices in processing. (Kramer.)

POULTRY HUSBANDRY

Professors Shaffner, Combs; Associate Professor Quigley, Assistant Professor Wilcox

P. H. 1. Poultry Production (3).

First semester. Two lectures and one laboratory period a week. This is a general

comprehensive course covering all phases of modern poultry husbandry practices, including breeds, incubation, brooding, housing, feeding, culling, marketing, caponizing, and the economics of production and distribution of poultry products.

P. H. 2. Poultry Biology (2).

Second semester. This course is designed to provide basic information as a foundation for other courses. The zoological classification of and structural differences among domestic birds are considered in their relation to food production. Special emphasis is given to turkey production.

P. H. 59. Advanced Poultry Judging (1).

First semester. Prerequisite, P. H. 1. One lecture or laboratory period per week. Theory and practice of judging and culling by physical means. Correlation studies of characteristics associated with productivity. Contestant for regional collegiate judging competitions will be selected from this class.

For Advanced Undergraduates

P. H. 100. Poultry Breeding (2).

Second semester. Prerequisite, P. H. 1 or 2. The inheritance of morphological and physiological characters of poultry are presented. Inheritance of factors related to egg and meat production and quality are stressed. Breeding plans are discussed.

(Wilcox.)

P. H. 101. Poultry Nutrition (3).

First semester. Two lectures and one laboratory period a week. (Not offered 1956-1957.) Nutritive requirements of poultry and the ingredients used to meet these requirements are presented. Studies are made of various nutritional diseases commonly encountered under practical conditions.

(Combs.)

P. H. 102. Physiology of Hatchability (3).

Second semester, alternate years. Two lectures and one laboratory period a week. (Not offered in 1956-1957.) The physiology of embryonic development as related to principles of hatchability and problems of incubation encountered in the hatchery industry are discussed. Laboratory exercises stressing fundamentals of hatchability are assigned.

(Shaffner.)

P. H. 103. Commercial Poultry Management (2).

Second semester. Prerequisite, ten hours of poultry husbandry, including P. H. 1. (Not offered in 1956-1957.) A symposium on finance, investment, plant layout, specialization, purchase of supplies, and management problems in baby chick, egg, broiler, and turkey production; foremanship, advertising, selling, by-products, production and financial records. Field trips required.

(Quigley.)

For Advanced Undergraduates and Graduates

P. H. 104. Technology of Market Eggs and Poultry (3).

First semester. Two lectures and one laboratory per week. A study of the techno-

logical factors concerned with the processing, storage, and marketing of eggs and poultry, also factors affecting their quality and grading. (—————)

A. E. 117. Economics of Marketing Eggs and Poultry (3).

Second semester. Three lectures per week. (See Agricultural Economics A. E. 117.)

Poultry Hygiene, see Veterinary Science, V. S. 107.

Avian Anatomy, see Veterinary Science, V. S. 108.

P. H. 107. Poultry Industrial and Economic Problems (2).

First semester. (Not offered in 1957-1958.) Relation of poultry to agriculture as a whole and its economic importance. Consumer prejudices and preferences, production, transportation, storage, and distribution problems are discussed. Trends in the industry, surpluses and their utilization, poultry by-products, and disease problems, are presented. Federal, state, and private agencies servicing the poultry industry and functions performed by each agency are discussed. (Staff.)

P. H. 108. Special Poultry Problems (1-2).

First and second semesters. For senior poultry students. The student will be assigned special problems in the field of poultry for individual study and report. The poultry staff should be consulted before any student registers for this course. (Staff.)

P. H. S111—Poultry Breeding and Feeding (1).

Summer session only. This course is designed primarily for teachers of vocational agriculture and extension service workers. The first half will be devoted to problems concerning breeding and the development of breeding stock. The second half will be devoted to nutrition. (Combs, Willcox.)

P. H. S112. Poultry Products and Marketing (1).

Summer session only. This course is designed primarily for teachers of vocational agriculture and county agents. It deals with the factors affecting the quality of poultry products and with hatchery management problems, egg and poultry grading, preservation problems and market outlets for Maryland poultry. (—————)

For Graduates

P. H. 201. Advanced Poultry Genetics (3).

First semester. Prerequisite, P. H. 100 or equivalent. This course serves as a foundation for research in poultry genetics. Linkage, crossing-over, inheritance of sex, the expression of genes in development, inheritance of resistance to disease, and the influence of the environment on the expression of genetic capacities are considered. (Willcox.)

P. H. 202. Advanced Poultry Nutrition (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, P. H. 101, Chem. 31, 32, 33 and 34, or equivalent, or permission of instructor. A fundamental study of the dietary role of proteins, minerals, vitamins, antibiotics, and carbohydrates is given as well as a study of the digestion and metabolism of these substances. Deficiency diseases as produced by the use of synthetic diets are considered. (Combs.)

P. H. 203. Physiology of Reproduction of Poultry (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, P. H. 102 or its equivalent. The role of the endocrines in avian reproduction, is considered. Fertility, sexual maturity, broodiness, egg formation, ovulation, and the physiology of oviposition are studied. Comparative mammalian functions are discussed. (Shaffner.)

P. H. 204. Poultry Seminar (1).

First and second semesters. Oral reports of current researches by staff members, graduate students, and guest speakers are presented. (Staff.)

P. H. 205. Poultry Literature: (1-4).

First and second semesters. Readings on individual topics are assigned. Written reports useful in conducting experiments with poultry. Actual feeding trials with chicks, as well as bacteriological and chemical assays will be performed. (Staff.)

P. H. 206. Poultry Research (1-6).

First and second semesters. Credit in accordance with work done. Practical and fundamental research with poultry may be conducted under the supervision of staff members toward the requirements for the degrees of M.S. and Ph.D. (Staff.)

P. H. 207. Poultry Nutrition Laboratory (2).

First semester. One lecture and one laboratory period a week. (Not offered 1955-1956.) To acquaint graduate students with common basic nutrition research techniques useful in conducting experiments with poultry. Actual feeding trials with chicks, as well as bacteriological and chemical assays will be performed. (Combs, Romoser.)

VETERINARY SCIENCE

Professors Brueckner, Poelma, De Volt, Hansen and Reagan;
Associate Professor Sperry.

For Advanced Undergraduates and Graduates**V. S. 101. Comparative Anatomy (3).**

First semester. Two lectures and one laboratory period a week. Normal structure of the demonstrated animals; normal physiological activities; interrelationship of structure and function. (Sperry.)

V. S. 102. Animal Hygiene (3).

Second semester. Two lectures and one laboratory period a week. Nature of disease; immunity; prevention, and control; common diseases of farm animals. (Sperry.)

V. S. 103. Regional Comparative Anatomy (2).

First semester. One lecture and one laboratory period a week. Structure and function of the feet of domestic species. Common diseases and abnormalities of the feet; their correction and prevention. (Sperry.)

V. S. 104. Advanced Regional Comparative Anatomy (2).

Second semester. One lecture and one laboratory period a week. Prerequisite, V. S. 103. Advanced studies of the anatomy and physiology of the feet of domesticated animals. Advanced and detailed studies of abnormalities and diseases of the feet; their prevention and correction. (Sperry.)

V. S. 107. Poultry Hygiene (3).

Second semester. Two lectures and one laboratory a week. Prerequisites, Bact. 1; P. H. 1. Virus, bacterial, and protozoon diseases; parasitic diseases; prevention, control, and eradication. (De Volt.)

V. S. 108. Avian Anatomy and Physiology (3).

First semester. Two lectures and one laboratory a week. Prerequisite, Zool. 1. Gross and microscopic structure, physiological processes; dissection and demonstration. (De Volt.)

For Graduates**V. S. 201. Animal Disease Problems (2-6).**

First and second semesters. Credit in accordance with work done. Prerequisite, veterinary degree or consent of staff. Laboratory and field work by assignment. (Poelma, D Volt, Hansn, Brueckner.)

V. S. 202. Animal Disease Research (2-6).

First and second semesters. Credit in accordance with work done. Prerequisite, veterinary degree or consent of staff. Studies of practical disease phases. (Poelma, De Volt, Hansen, Brueckner.)

V. S. 203. Electron Microscopy (2).

First semester. One lecture and one laboratory period a week. Theory of the electron microscope, preparation of specimens, manipulations, photography. (Reagan and Brueckner.)

AGRICULTURAL, EXTENSION, RESEARCH AND REGULATORY AGENCIES

EXTENSION SERVICE

PAUL E. NYSTROM, Director

Cooperative Extension work in agriculture and home economics, established by State and Federal Laws in 1914, is designed to assist the people of the State with their agricultural and homemaking problems. It is conducted under a Memorandum of Understanding between the Extension Service of the University of Maryland and the U. S. Department of Agriculture. The Extension Service becomes the educational arm in the State of the U. S. Department of Agriculture.

The work of the Extension Service is cooperatively financed by the Federal, State and county governments. In each county there is a County Agricultural Agent and Home Demonstration Agent and assistants where funds permit and the work requires. Backed by a staff of specialists at the University, these Agents are in close contact with local people and their problems.

Practically every phase of agriculture and home life comes within the scope of Extension work. The Extension Service teaches largely by demonstrations and carries the scientific and economic results of the Experiment Station and Department of Agriculture to rural people in ways that they understand and use.

In Maryland, the Extension Service works in close association with all rural groups and organizations. In addition to work on the farms and in the farm homes, the Extension program is aimed at the many rural and even urban people who service the agricultural industries of the State including consumers. Thousands of boys and girls are developed as leaders and given practical education in 4-H Clubs.

In addition to work with adults, thousands of boys and girls are developed as leaders and given practical education in 4-H Clubs. Through their diversified activities, the boys and girls are given a valuable type of instruction and training, and are afforded an opportunity to develop self-confidence, perseverance and citizenship.

The Extension Service in cooperation with the College of Agriculture and the Experiment Station arranges and conducts short courses in various lines, many of which are held at the University. Some of these courses have been held regularly over a period of years and others are added as the need and demand develop.

Canners' Short Course

For many years a short course has been held each year to aid canners in keeping abreast of the latest developments in their industry. It is usually held in February.

Rural Women's Short Course

To provide special training for rural women, the Rural Women's Short Course

has been conducted since 1922. Attendance, extending for one week, has grown steadily to more than one thousand women from all counties and includes urban women from Baltimore City.

Other Short Courses

Courses for nurserymen, florists, poultry flock selection agents, poultry products marketing, beekeepers, greenkeepers, sanitarians, conservation, and cow testers are among those held in recent years. Announcement of such courses is made to those who may be interested.

Boys and Girls' Club Week

Members and leaders of boys' and girls' 4-H Clubs come to the University for a week each year, usually in August. Class work and demonstrations are given by specialists and a broad program of education, inspiration and recreation is provided.

THE AGRICULTURAL EXPERIMENT STATION

IRVIN C. HAUT, Ph.D., *Director*

The Agricultural Experiment Station serves Maryland agriculture in much the same manner as research laboratories serve large corporations. Maryland agriculture is made up of forty thousand small individual businesses, and there is not sufficient capital, or sufficient income so that each one of these can conduct research. Yet the problems which face a biological undertaking such as farming, are as numerous and perplexing as the problems of any business. Certainly our production of food would be much more costly if it were not for the research results that have been obtained by the Agricultural Experiment Station.

The station is a joint Federal and State undertaking. Passage of the Hatch Act in 1887, which made available a grant in aid to each state for the purpose of establishing an agricultural experiment station, gave a great impetus to the development of research work in agriculture. This work was further encouraged by the passage of the Adams Act in 1906, the Purnell Act in 1925, the Bankhead-Jones Act in 1935, and the Flannagan-Hope Act of 1946.

The work of the Maryland Agricultural Experiment Station which is supported by these Acts and by State appropriations centers at College Park. On the University Campus are to be found laboratories for studying insects and diseases, soil fertility problems, botanical problems, and others. This is also the location of the livestock and dairy barns with their experimental herds. About eight miles from the campus at College Park, near Beltsville, the Plant Research Farm of about 500 acres is devoted to work connected with soil fertility, plant breeding and general horticultural problems. An experimental farm near Upper Marlboro is devoted to the problems of tobacco growing and curing. A farm near Salisbury is devoted to solution of the problems of producers of broilers and of vegetable crops in the southern Eastern Shore area. Near Ellicott City a farm of 234 acres is devoted to livestock problems. Also tests of various crop and soil responses are distributed throughout the State. These different locations give a chance to conduct experiments under conditions which exist where the results will be put into practice.

The Station, in general, exists as the "trouble-shooter" for Maryland farmers. The solution of many difficult problems in the past has given the Station an excellent standing with farmers of the State.

DEPARTMENT OF MARKETS

All of the activities of the Department of Markets are geared to the importance in modern agriculture of the problems of marketing farm products. The Department endeavors to serve the every-day needs of the farmer in marketing his products and to insure a fair and equitable treatment of the farmer in all dealings which he may have concerning the marketing of his products. In the performance of these responsibilities, the Department carries out programs in extension marketing, conducts market surveys, compiles and disseminates marketing information and market data, operates a market news service, provides an agricultural inspection and grading service, maintains a consumer information service and enforces and interprets the agricultural marketing laws of the state. The regulatory aspects of the Department's functions are carried out as the agent of the State Board of Agriculture under the authority of various State laws relating to the marketing of farm products. A close working relationship is maintained with other specialists in the Extension Service, all departments of the Agricultural Experiment Station, the Maryland Crop Reporting Service, and the Agricultural Marketing Service of the U. S. Department of Agriculture. The voluntary and dynamic cooperation of the personnel in these various activities brings to bear on agricultural marketing problems an effective combination of research, education, and service.

The passage of the Federal Agricultural Research and Marketing Act gave additional impetus to the study and solution of agriculture's marketing problems. The Department of Markets is largely responsible for developing the State program under Title II of this act.

Information and assistance in all phases of marketing is available to all interested persons. When a sufficient number of individuals are interested, marketing specialists hold meetings and demonstrations in local communities. Field offices are located in Baltimore, Salisbury, Hancock, Hagerstown and Pocomoke. Department headquarters is at the University of Maryland, College Park, Maryland.

STATE HORTICULTURAL DEPARTMENT

In 1896 the subject of nursery inspection was given consideration under Article 48, of the Code of Public General Laws, under the title "Inspection" as designated by Chapter 290 of the "Acts of the General Assembly of Maryland of 1896." In 1898 certain sections of Article 48 were repealed and reenacted with amendments, under a new sub-title, "State Horticultural Department," and eight new sections were added thereto. In 1916 the sections were again reenacted with such changes in the wording as were necessary to bring them into conformity with the reorganization of the Maryland State College of Agriculture and Experiment Station and its Board of Trustees. Subsequently all regulatory

functions including newly enacted Articles in regard to bee diseases, mosquitoes, and aerial spraying, were transferred to the State Board of Agriculture under Chapter 391 of the "Acts of the General Assembly."

Work in this field is designed to control insects and plant diseases and to protect the public in the purchase of products of nurserymen and florists. A considerable part of the time of the staff is occupied by inspection of orchards, crops, nurseries, greenhouses, and floral establishments. Cooperation with the Federal Government in the inspection and certification of materials that come under quarantine regulations is another major function of the department. The department enforces the provisions of the Apiary Law, including inspection of apiaries. All activities pertaining to control of insects are conducted under the direction of Dr. E. N. Cory, State Entomologist. Activities of the department in the field of plant disease control are under direction of Dr. L. O. Weaver, State Plant Pathologist. This service includes control and eradication of diseases of strawberries and other small fruits, diseases of apples, peaches, etc., inspection and certification of potatoes and sweet potatoes for seed, control of white pine blister rust, Dutch elm disease, etc.

DAIRY INSPECTION SERVICE

The Maryland Dairy Inspection Law became effective June 1, 1935. However, the present activities of the Dairy Inspection Service are based on Article 43 of the Annotated Code of Maryland, Section 542 thru Section 558, of the Laws of Maryland, 1951. The dairy department is charged with the administration of the law.

The purposes of the Dairy Inspection Law are as follows: (a) To insure producers who sell milk and cream by measure, weight and butterfat test, that samples, weights and tests used as the basis of payment for such products are correct; (b) To insure dealers who purchase milk and cream that their agents shall correctly weigh, sample, and test these products; (c) To insure correctness of tests made for official inspections or for public record. To achieve these purposes the law requires the licensing of all dealers who purchase milk and cream from producers, whether the purchases are by measure, weight, or test, and the licensing of all persons sampling, weighing and testing milk and cream when the results of such samples, weights, and tests are to serve as a basis of payment to producers.

Duties of the Dairy Inspection Service, resulting from enforcement of the Inspection Law, deal with the calibration of that glassware used in testing milk and cream and the rejection of inaccurate items; examination of all weighers, samplers, and testers and the issuance of licenses to those satisfactorily passing the examination; and inspection of the pertinent activities of weighers, samplers, testers and dairy plants.

STATE DEPARTMENT OF DRAINAGE

The State Department of Drainage was established in 1937. Its duties are to promote and encourage the drainage of agricultural lands in the State, to

correlate the activities of the local drainage organizations in the State and to cooperate with State and Federal agencies in the interest of a permanent program of improved drainage.

STATE INSPECTION AND REGULATORY SERVICE

Feeds, Fertilizers, Agricultural Liming Materials, Insecticides and Fungicides

The protection of consumers and ethical manufacturers of agricultural products against fraudulent practices, makes certain specialized statutes necessary. These laws are classified as correct labeling acts, and are enforced by the State Inspection and Regulatory Service. Included in this legislation are the State Feed, Fertilizer, Agricultural Liming Materials, and Insecticide and Fungicide laws.

Work of enforcing these laws is divided into five distinct phases: First, the commodities concerned must be registered under acceptable brand names, and with proper labels; second, official samples must be collected by the Department's inspectors from all parts of the state; third, chemical and physical examinations must be made to establish that professed standards of quality are being met; fourth, results must be assembled and published in concise and understandable form, with the reports made available to all interested persons; and fifth, the prosecution of those responsible for flagrant violations.

Hundreds of tests also are made annually on feed, fertilizer, and lime samples submitted by state purchasers. No charge is made for this service.

Throughout its existence, this Department has cooperated with comparable federal agencies in every possible way. In this activity it has attained not only state-wide, but also a nationally-recognized reputation for accuracy, timeliness, and unbiased fair treatment of the consumer and manufacturer alike.

The facilities of the Department are at all times available to supply the manufacturer with technical advice and to safeguard him from unfair competition.

For its entire program of service and protection, the Department relies in large measure upon education, from the standpoint of both buyer and seller. However in those rare instances when this policy is unheeded, backing by the courts, both federal and state, can be depended upon for enforcement assistance.

SEED INSPECTION SERVICE

The Seed Inspection Service administers the State seed law; inspects seeds sold throughout the State; collects seed samples for laboratory examination; reports the results of the examinations to the parties concerned; publishes summaries of these reports which show the relative reliability of the label information supplied by wholesale seedsmen; cleans and treats tobacco seed intended for planting in the State; makes analyses, tests, and examinations of seed samples submitted to the Laboratory; and advises seed users regarding the economic and intelligent use of seeds. The Service also cooperates with the Agricultural Marketing Service of the United States Department of Agriculture in the enforcement of the Federal Seed Act in Maryland.

The work of the Seed Inspection Service is not restricted to the enforcement of the seed law however, for State citizens may submit seed samples to the Laboratory for analysis, test, or examination. Specific information regarding suitability for planting purposes of lots of seeds is thus made available to individuals without charge. The growth of this service has been steady since the establishment of the Laboratory in 1912. Most Maryland citizens, city and country, are directly interested in seeds for planting in flower-beds, lawns, gardens, or fields.

MARYLAND LIVE STOCK SANITARY SERVICE

The Live Stock Sanitary Service is organized under the State Board of Agriculture and is charged with the responsibility of preventing the introduction of diseases of animals and poultry from outside of the state and with control and eradication of such diseases within the state. The service is further charged with the responsibility of cooperating with the State Department of Health in the suppression of diseases of animals and poultry which affect the public health.

Control projects in bovine tuberculosis, Johne's disease, and bovine brucellosis are conducted in cooperation with the Agricultural Research Service of the United States Department of Agriculture. The field force of state employed veterinarians is augmented by a number of federal veterinarians in the conduct of these control programs. The control of swine brucellosis, pullorum disease in poultry, rabies, and many other disease conditions is conducted by the state without outside assistance.

Facilities for the diagnosis of a wide variety of diseases are furnished in the main laboratory at College Park and in the branch laboratories at Salisbury, Centerville, Bel Air, Frederick, and Hagerstown. A branch laboratory for Garrett County has been approved by the Board of Agriculture. Virtually every part of the state is in easy reach of these opportunities for help.

Research studies are conducted mainly at the College Park and Salisbury laboratories, but some field investigations are also made from branch laboratories. Some projects are partly supported by federal funds appropriated through the Maryland Agricultural Experiment Station. From these research studies comes information concerning control by sanitary measures, by vaccination, and by drug treatment which saves breeders and owners vast sums.

Members of the staff give instruction in animal and poultry diseases in the University of Maryland particularly to students in agriculture. Appropriate subjects are also presented to farmers' clubs and industry groups in the state.

College of ARTS and SCIENCES

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THE CAMPUS AT NIGHT

COLLEGE OF ARTS AND SCIENCES

LEON PERDUE SMITH, Ph.D., *Dean*CHARLES MANNING, Ph.D., *Assistant Dean*

THE College of Arts and Sciences offers its students a liberal education. It seeks to develop graduates who can deal intelligently with the problems which confront them and whose general education will be a continuing source not only of material profit, but of genuine personal satisfaction. It also offers each student the opportunity to concentrate in the field of his choice; this element of depth serves both as an integral part of his education and as a foundation for further professional training or pursuits.

Students in other colleges of the University are offered training in fundamental courses that serve as a background for their professional education.

The courses required by the University for the baccalaureate degree in any college emphasize the development and nature of American civilization. All of these courses except one are given by the College of Arts and Sciences.

History

This college is an outgrowth of the Division of Language and Literature and the Division of Applied Science and the later School of Liberal Arts of Maryland State College. In 1921 the School of Liberal Arts and the School of Chemistry were combined and other physical and biological sciences were brought into the newly formed College of Arts and Sciences. In later reorganizations some departments have been added and some transferred to the administrative control of other colleges.

Requirements for Admission

The requirements for admission to the College of Arts and Sciences are, in general, the same as those for admission to the other colleges and schools of the University. Application must be made to the Director of Admissions, University of Maryland, College Park, Maryland.

In selecting students more emphasis will be placed on good marks and other indications of probable success in college than on any fixed pattern of subject matter. In general, four units of English and one unit each of Social and Natural Sciences are required. One unit of Algebra and one of Plane Geometry are desirable. Foreign Language entrance units, although highly desirable for certain programs, are not required. Units in Fine Arts and in Trade and Vocational subjects are acceptable as electives.

For admission to the pre-medical curriculum, two years of any one foreign language are recommended. A detailed statement of the requirements for admission to the School of Medicine and the relation of these to the pre-medical curriculum may be obtained by writing the Director of Admissions.

For a more detailed statement of admission requirements and policies write to the Director of Publications, University of Maryland, College Park, Maryland, for a copy of the "General Information Issue" of the Catalog.

Costs

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140.00 to \$170.00 lodging for Maryland residents, or \$180.00 to \$220.00 for residents of other States and Countries; and laboratory fees; which vary with the laboratory courses pursued. A matriculation fee of \$10.00 is charged all new registrants. A charge of \$250.00 is assessed students who are non-residents of the State of Maryland.

For a more detailed statement of these costs write to the Director of Publications, University of Maryland, College Park, Maryland, for a copy of the "General Information Issue" of the Catalog.

Military Instruction

All male students, unless specifically exempted under University regulations, are required to take basic Air Force R. O. T. C. training for a period of two years. The successful completion of this course is a prerequisite for graduation and it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who have not fulfilled this requirement will complete the course or take it until graduation, whichever occurs first.

Selected students who wish to do so may, with proper approval, carry as electives during their Junior and Senior years advanced Air Force R. O. T. C. courses which lead to a regular or reserve commission in the United States Air Force.

For further details concerning the requirements in Military Instruction write to the Director of Publications, University of Maryland, College Park, Maryland, for a copy of the "General Information Issue" of the Catalog.

Degrees

The degrees conferred on students who have met the requirements prescribed by the College of Arts and Sciences are Bachelor of Arts and Bachelor of Science.

Students of this College who complete satisfactorily curricula with majors in departments of the Humanities or Social Sciences are awarded the degree of Bachelor of Arts*. Those who complete satisfactorily curricula with majors in departments of Biological or Physical Sciences are awarded the degree of Bachelor of Science.†

Students who complete satisfactorily the prescribed combined program of

*The departments of Economics, Geography, and Government and Politics, although administratively in the College of Business and Public Administration, offer courses for Arts and Sciences students. Majors may be elected in these departments as in those of the other departments of the Division of Social Sciences which are administered by the College of Arts and Sciences.

†The department of Botany, although administered by the College of Agriculture, offers courses for Arts and Sciences students. A Major may be elected in this department as in those of the other departments of the Division of Biological Sciences administered by the College of Arts and Sciences.

Arts and Sciences and Medicine, or of Arts and Sciences and Dentistry, will be granted the degree of Bachelor of Science on the recommendation of the Dean of the School of Medicine, or of the Dean of the School of Dentistry. This program consists of a minimum of 90-100 semester hours (exclusive of the required courses in military science, hygiene, and physical activities) in the College of Arts and Sciences and a minimum of 30 semester hours (usually the first year's program) in the School of Medicine, or in the School of Dentistry.

Students who complete satisfactorily the prescribed combined program of Arts and Sciences and Law will be granted the degree of Bachelor of Arts on the recommendation of the Dean of the School of Law. This program consists of a minimum of 90 semester hours (exclusive of the required courses in basic military science, hygiene, and physical activities) in the College of Arts and Sciences and a minimum of 30 semester hours (the first year's program or its equivalent) in the School of Law. Since the regular program of the first year of Law requires only 28 semester hours, it is usually advisable for the pre-legal student to complete a minimum of 92 semester hours at College Park.

Residence

The last thirty semester hours credit of any curriculum leading to a baccalaureate degree in the College of Arts and Sciences must be taken in residence in this University.

Students working for one of the combined degrees must earn the last 30 semester hours credit of the arts program in residence in the College of Arts and Sciences, College Park.

The complete statement of this requirement may be found in section 28 of the *Academic Regulations*.

General Requirements for Degrees

The baccalaureate degree from the College of Arts and Sciences may be conferred upon a student who has satisfied the following requirements:

1. University requirements.
2. College of Arts and Sciences requirements:

A minimum of 120 semester hours credit in academic subjects other than basic military science is required for a bachelor's degree. Men must acquire in addition 12 semester hours in military science, and 4 semester hours in physical activities. Women must acquire in addition 4 semester hours in hygiene and 4 semester hours in physical activities.

Junior Requirements

A student must acquire a minimum of 56 semester hours with an average grade of at least C in the Freshman and Sophomore years before he will be permitted to begin advanced work on his major and minor.

The following minimum requirements should be fulfilled, as far as possible, before the beginning of the Junior year and must be completed before graduation:

I. English—English 1, 2, and 3, 4 or 5, 6: twelve semester hours.

II. Foreign Language—twelve semester hours in one language.

III. Social Studies—Government and Politics 1, three semester hours; Sociology 1, three semester hours; History 5 and 6, six semester hours: **twelve semester hours.**

IV. Speech—two to four semester hours in accordance with the particular curriculum.

V. Natural Science and Mathematics—twelve semester hours. The science courses elected require the approval of the dean; they will usually be from those departments offering majors in the College of Arts and Sciences. At least one course must include laboratory experience and one course must be elected in each of the divisions of Biological and Physical Sciences except in the case of students whose science courses are specifically prescribed in their curricula.

VI. Basic Military Science for Men—twelve semester hours. Required freshman and sophomore years.

VII. Health for Women—four semester hours. Required freshman year.

VIII. Physical Activities for Men and Women—four semester hours. Required freshman and sophomore years.

3. Major and Minor Requirements—When a student has completed satisfactorily the requirements of the freshman and sophomore years he will select a major in one of the departments of an upper division and for graduation will complete a departmental major and a minor. The courses constituting the major and the minor must conform to the requirements of the department in which the major work is done.

The student must have an average of not less than C in the introductory courses in the field in which he intends to major.

A major shall consist, in addition to the underclass departmental requirements, of 24-40 hours, of which at least twelve must be in courses numbered 100 or above.

A minor shall consist of a coherent group of courses totalling 18 semester hours in addition to the requirements listed above. At least six of the 18 hours must be in a single department in courses numbered 100 or above. The courses comprising the minor must be chosen with the approval of the major department.

The average grade of the work taken in the major field must be at least C; some departments will count toward satisfaction of the major requirement no course completed with a grade of less than C. The average grade of the work taken in the major and minor fields combined must be at least C. A general average of C in courses taken at the University of Maryland is required for graduation.

Special Honors

Programs of readings for special honors are open to undergraduates. These programs are currently available in Literature, English, French, German, His-

tory, Mathematics, and Spanish. The program for special honors in literature is open to undergraduates in any college of the University who have the approval of their dean and of the head of the department of English. Candidates are examined on an approved list of literary works including translations from foreign languages. Application may be made to the head of the department of English at any time before the beginning of the junior year. The programs for special honors in English, French, German, History, Mathematics, and Spanish are open to students majoring in the departments concerned. The individual programs of readings should be begun early in the student's collegiate career; in no case later than the beginning of the senior year. Application should be made to the head of the department concerned.

Certification of High School Teachers

If courses are properly chosen in the field of education, a prospective high school teacher can prepare for high school positions, with a major and minor in one of the departments of this College. A student who wishes to work for a teacher's certificate should consult his advisor before the junior year.

Electives in Other Colleges and Schools

A limited number of courses taken in other colleges and schools of the University may be counted for elective or minor credit toward a degree in the College of Arts and Sciences.

The number of credits which may be accepted from the various colleges and schools is as follows: College of Education—24; all other colleges—20; Schools of Dentistry, Law, and Medicine—In combined degree programs the first year of professional work must be completed.

Normal Load

The normal load for students in this college is 15 semester hours credit per semester, exclusive of the required work in physical activities, military science, and hygiene.

Juniors and seniors are not permitted to register for more than 18 hours unless they have a "B" average for the preceding semester and the approval of the Dean of the College. No student may modify the prescribed number of hours without special permission from the Dean.

Advisers

Each freshman and sophomore in this college will be assigned to a faculty adviser who will help the student, during his first two years, to select his courses and to determine what his field of major concentration should be. Juniors in the combined programs will continue in the same system.

Other juniors and seniors will consider the head of their major department, or his designated assistant, their adviser, and should consult him about the arrangements of their schedules of courses.

Work in the Freshman and Sophomore Years

The work of the first two years in the College of Arts and Sciences is designed

to give the student a basic general education, and to prepare him for concentration in the latter part of his course.

It is the student's responsibility to develop in these earlier years such proficiency in basic subjects as may be necessary for his continuation in the field of his special interest. Personal aptitude and a general scholastic ability must also be demonstrated, if permission to pursue a major study is to be obtained.

The student should follow the curriculum for which he is believed to the best fitted. It will be noted that a core group of studies is required of all students who are candidates for a bachelor's degree. These subjects should be taken, if possible, during the Freshman and Sophomore years.

GENERAL A.B. CURRICULUM

The following curriculum gives the subjects required of students planning to major in one of the departments of the Divisions of Humanities or Social Studies. Since some departmental majors require prerequisites which should be taken during the first two years, individual programs must be prepared in consultation with the assigned adviser; the elective hours listed may be used for this purpose. Lower division advisers and the heads of the departments of Music and Sociology have available copies of normal curricula for distribution to students who wish additional information about majors in Art, Music or Sociology.

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
G. & P. 1—American Government (or Sociology of American Life)	3	....
Soc. 1—Sociology of American Life (or American Government)...	....	3
*Foreign Language.....	3	3
Mathematics or Natural Science.....	3-4	3-4
L. S. 1, 2—Library Science.....	1	1
Speech 1, 2—Public Speaking.....	2	2
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
He. 2, 4—Health (Women).....	2	2
Physical Activities.....	1	1
Total.....	18-20	18-20
<i>Sophomore Year</i>		
Eng. 3, 4 or 5, 6—Composition and English or World Literature	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Foreign Language (Continued).....	3	3
Natural Science or Mathematics.....	3-4	3-0
Elective	3	3-6
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	16-20	16-19

*A placement test is given during Registration Week for students wishing to pursue a language they have studied in high school.

I. AMERICAN CIVILIZATION

The University has a comprehensive program in American studies. It begins with required courses on the freshman and sophomore level, includes a major for juniors and seniors, and also provides for graduate work on the M.A. and Ph.D. level. (For information concerning the graduate program, see the graduate catalog.)

The student who majors in American Civilization has the advantage of being taught by cooperating specialists from various departments. The committee in charge of the program represents the departments of English, History, Government and Politics, and Sociology. Members of the committee serve as official advisers to students electing to work in the field.

The program is intended to have generous breadth, but the danger of securing breadth without depth is offset by the requirement of an area of concentration. Studies in American Civilization are supplemented by studies in source cultures and interacting cultures; however, in planning a curriculum, students are required to concentrate in one of the four departments primarily concerned with the program. The program must include at least 42 semester hours of work from the departments participating in the program. These credits constitute collectively a major and a minor.

In his senior year, each major student is required to take a conference course (American Civilization 137, 138) in which the study of American Civilization is brought to a focus. During this course, the student analyzes eight or ten important books which reveal fundamental patterns in American life and thought and receives incidental training in bibliographical matters, in formulating problems for special investigation, and in group discussion.

Freshmen and sophomores who are interested in concentrating in American Civilization should consult with their Lower Division Adviser. Upperclassmen should consult with the Executive Secretary of the American Civilization curriculum, Professor Bode.

II. THE HUMANITIES

Art

Two types of majors are offered in art: Art Major A for those who take the art curriculum as a cultural subject and as preparation for a career for which art is a necessary background; Art Major B for those who prepare themselves for creative work on a professional basis.

In both types the student begins with the basic courses, and moves to more advanced study of the theory of design and of the general principles involved in visual expression. A large amount of study takes the form of actual practice of drawing and painting. The student, in this way, gains a knowledge of the vocabulary of drawing and painting, and of the methods and procedures underlying good quality of performance.

Art Major B emphasizes the development of craftsmanship and the creative faculty. Art Major A, while including the basic studio courses, necessarily places

emphasis on general history, composition, and art appreciation, with subsequent choices of special art epochs for greater detailed study.

Art History and Art Appreciation are of special interest to students majoring in English, History, Languages, Philosophy, or Music. It is suggested that they schedule Art 9, 10, and 11, Historical Survey of Painting, Sculpture, and Architecture, and History of American Art, as excellent supplementary study for a fuller understanding of their major. Art 20 is recommended for English, Languages, Philosophy, Home Economics, and Education majors. Art 10, History of American Art, is advised for majors in the American Civilization courses. Home Economics and Horticulture majors are encouraged to schedule basic art courses as a useful means of training observation and developing understanding of, and proficiency in, the visual arts.

Courses required in all art majors: Art 1—Charcoal Drawing (3); Art 5—Still Life Painting (3); Art 9, 11—Historical Survey of Painting, Sculpture and Architecture (3, 3); Art 20—Art Appreciation (2).

Course required in Cultural Art major: Art 10—History of American Art (1).

Course Required in Creative Art major: Art 7—Landscape Painting (3).

Classical Languages and Literatures

Twelve hours of underclass requirements must be completed before a student may begin work toward a major. These requirements are satisfied by the first four courses taken, beginning from the level of initial registration in accordance with the schedule which precedes the list of course offerings in this catalog.

The major and minor requirements are those generally in effect in the College of Arts and Sciences and stated in the appropriate section above.

English

Students majoring in English, particularly those who plan to do graduate work, are urged to take work in foreign language in addition to that required for graduation. In selecting minor or elective subjects, it is recommended that students give special consideration to the following: French, German, philosophy, history, and fine arts.

Students who major in English must choose 21 hours of the possible 24-40 hours required of a major from courses in several groups, as follows:

1. Three hours in language (Eng. 8, 101, 102, 104).
2. Six hours in major figures (Eng. 104, 112, 115, 116, 121, 155, 156).
3. Six hours in survey or type courses (Eng. 106, 110, 111, 112, 113, 120, 122, 123, 125, 126, 129, 130, 134, 135, 139, 140, 143, 144, 145, 157).
4. Six hours in American literature (Eng. 148, 150, 151, 155, 156).

Honors in English: A student whose major is English and who maintains an approved average in his grades may read for honors in English. A candidate for honors is examined upon an approved individual program of readings in an area of his special interest in English or American literature. Application may

be made to the head of the Department of English between the second semester of the sophomore year and the first semester of the senior year.

Foreign Languages and Literature

The underclass department requirements which must be satisfied before a student can begin work toward a major are the courses numbered 1, 2, 4, and 5 (or 1, 2, 6, and 7).

Two types of majors are offered in French, German, or Spanish: one for the general student or the future teacher, and the other for those interested in a rounded study of a foreign area for the purpose of understanding another nation through its literature, history, sociology, economics, and other aspects.

Literature and Language Major: Language and literature as such are stressed in the first type of major. Specific minimum requirements beyond the first two years are a semester each of intermediate and advanced conversation (Fr., Ger., or Span. 8 or 9 and 80 or 81), six hours of the introductory survey of literature (Fr., Ger., or Span. 75 and 76), one semester of advanced composition (Fr., Ger., or Span. 121), and any twelve hours in literature courses numbered 100 or above—a total of 26 semester hours. Beyond this minimum further courses in the Department are desirable and as electives work in American and in Comparative Literature is strongly recommended; Comparative Literature 101 and 102 are required.

Foreign Area Major: The area study major endeavors to provide the student with a knowledge of various aspects of the country whose language he is studying. Specific minimum requirements beyond the first two years are seven hours of conversation (Fr., Ger., or Span. 8, 9, and 80 or 81), six hours of the introductory survey of literature (Fr., Ger., or Span. 75 and 76), six hours in **Civilization** (Fr., Ger., or Span. 161 and 162), one semester of **Advanced Composition** (Fr. Ger., or Span. 121), and six additional hours in literature courses numbered 100 or above—a total of 28 hours. Comparative Literature 101 and 102 are required. In addition the student takes, as a minor, twenty to thirty-six hours in geography, history, political science, sociology, or economics, distributed through these fields in consultation with advisers in the Foreign Language Department. The student is urged to take some elective work in American and in Comparative Literature.

Special Honors: The distinction of special honors in French, German, or Spanish is awarded to majors who, in addition to fulfilling the above-mentioned requirements, have completed certain special readings and passed a comprehensive examination in their field of concentration. The purpose of honors in languages is (1) to encourage independent reading and (2) to coordinate the knowledge afforded by the various individual courses which constitute the major curricula. The work leading to honors is done in conferences between students and professors. It should be begun early in the student's collegiate career, and in no case may students declare their candidacy for honors later than the beginning of their senior year.

Music

The functions of the Department are (1) to help the student develop sound critical judgment and discriminating taste in the art of music; (2) to enable him to pursue the study of music as one of the humanities and, consequently, as a source of emotional and intellectual satisfaction; (3) to provide a sequence of courses that prepares him for graduate work in the fields of music literature, theory, and musicology; (4) to prepare him to teach in the field (see the catalogue of the College of Education for the curriculum leading to the B. S. in Ed. degree with a major in Public School Music).

Music is assuming increasing importance in the life of every educated person today. Its full enjoyment and comprehension require a foundation in music literature and theory; many of the Departmental courses are offered with that end in view. Music 1, *Introduction to Music*, is fundamental to all work in the Department, and is open to all students in the University. Intermediate and advanced courses may be taken by any general student who has completed the specified prerequisites or their equivalents. The University Orchestra, Band, and choral groups are likewise open to all qualified students.

The curriculum leading to the B.A. degree with a major in music is recommended for the student whose interests are cultural rather than vocational. Yet it provides the necessary background for stimulating careers in musical journalism and criticism, research, and teaching on the college level.

Courses required in major: Mus. 1—*Introduction to Music* (3); Mus. 7, 8—*Theory of Music* (3, 3); Mus. 70, 71—*Harmony* (3, 3); Mus. 120, 121—*History of Music* (3, 3); Mus. 141—*Musical Form* (2); Mus. 145—*Counterpoint* (2) or Mus. 147—*Orchestration* (2); Mus. 0—*Piano* (0); *Applied Music* (8); *Music Literature or Theory* (9); six semesters of ensemble work (Mus. 4, 5, 6, 10, or 15).

Philosophy

The department's undergraduate courses are designed to help students attain philosophical perspective, clear understanding, and sound critical evaluation concerning the nature of man, his place in the universe, and the significance of the principal types of human experiences and activities.

To those students who seek a broad, liberal, and cultural background of knowledge, but because of specialized studies have only a minimum of free electives, the department offers two general introductory courses: *Philosophy 1*, a critical survey of views concerning man, nature, religion, and knowledge, and *Philosophy 2*, a critical survey of views concerning morality, government, education, and art. For the general picture, both courses are recommended; each, however, is available separately, and either may be taken first.

In addition to *Philosophy 1* and *2*, the department offers two other courses designed as electives for students who wish to acquaint themselves with the ideas of some of the great philosophers: *Philosophy 123*, *124*, *Philosophies Men Live By*. Students may not receive credit for more than two of the courses 1, 2, 123, 124.

To students in other fields who wish to explore the philosophy of their subjects, the department offers a choice among a group of specifically related courses: 52, Philosophy in Literature; 53, Philosophy of Religion; 151, Ethics; 153, Philosophy of Art; 154, Political and Social Philosophy; 155, Logic; 156, Philosophy of Science.

To students of literature, history, or the history of ideas, the department offers historical courses in ancient, medieval, modern, recent and contemporary, Oriental, and American philosophy. The last course is particularly relevant for students of American Civilization.

Philosophy 155, Logic, is recommended in the Arts-Law curriculum and the Government and Politics program.

Minors in philosophy are especially suitable for students majoring in English, Literature, the Social Sciences, American Civilization, Psychology, and in the pre-Ministry and pre-Law fields. Interested students should consult with the chairman of the department.

Freshmen and Sophomores planning to major in Philosophy should consult the chairman of the department about preparation for the major.

Speech and Dramatic Art

The courses in this department have two main functions: (1) to provide training in basic oral communication skills to meet the general needs of undergraduates of the university; (2) to provide integrated specialized training for students who wish to major or minor in speech.

A major may be taken in the Speech Department in one of two areas, the speech arts or the speech sciences. The speech arts include theater, radio and television, public speaking, and oral interpretation; the speech sciences include phonetics, semantics, speech pathology and audiology. The undergraduate program provides a level of training that will prepare students to enter several professional fields. Specifically, these fields are: (1) teaching speech and dramatic art or directing these activities; (2) radio and television; (3) speech and hearing therapy. In addition, adequate preparation and training for graduate work is provided.

Minors in speech are adapted to meet the needs of students majoring in English, the Social Sciences, Journalism and Public Relations, Elementary Education, Nursery School—Kindergarten Education, pre-Law and pre-Ministry fields.

Prerequisites for all majors in speech are Speech 1, 2, 3, 5 and 6, and Zoology 1. Major requirements: 30 hours of courses in speech with 15 hours of courses numbered 100 and above, in either the speech arts or speech sciences. Speech 111, Seminar; is required of all majors in speech. No grades of D in the major field will be counted toward completing the major requirements for graduation.

Specific requirements for professional training in speech and hearing therapy include completion of the general requirements for speech majors with the following additions: Zoology 15, 16; Psychology 1, 5, 131; a minimum of 21 hours of speech sciences at the 100 level.

Qualified students, depending upon specialized interests, are invited to participate in the activities of the University Theater, Radio-Television Guild, and the Calvert Debate Club.

III. THE SOCIAL SCIENCES

Economics

Students registered in the College of Arts and Sciences may major in Economics. During the freshman and sophomore years prospective economics majors should consult with their Lower Division Adviser in Arts and Sciences concerning preparation for the major. Normally Economic Developments (2, 2) is taken during the freshman year and Principles of Economics (3, 3) during the sophomore year.

Juniors and seniors are advised by the faculty of the Department of Economics, which is administered in the College of Business and Public Administration. In addition to the ten lower division credits listed above, Economics majors must complete a minimum of 26 credits with an average grade of not less than C. Advanced Economic Principles (3) and Elements of Statistics (3) are required. Other courses to meet the requirements of the major are to be selected with the aid of a faculty adviser. Descriptions of courses in Economics will be found in the catalog of the College of Business and Public Administration. Additional information about the curriculum in Economics may be obtained at the departmental office.

Geography

Geography is a recognized major field in Arts and Sciences leading to the A.B. degree. Arts and Sciences students may register for its courses and major in geography from a liberal arts point of view, although the department is administered by the College of Business and Public Administration. Freshmen and sophomores wishing to major in geography should consult their Lower Division advisers. Additional information about the geography program may be obtained at the department office.

The following courses are required: Geog. 10 and 11 (3, 3); Geog. 30 (3); Geog. 35 (3); Geog. 40 and 41 (3, 3); Geog. 170 (3); and 18 hours in other geography courses numbered 100 to 199, of which 6 hours must be in non-regional courses.

The following science courses are required: Bot. 1 (4); Chem. 1 (4); Agron. 114 (4). The following supporting courses are also required: Bot. 113 or 102 (2 or 3); Econ. 31 and 32 (3, 3); Soc. 105 (3). Certain of these courses are applicable to the minor. Please consult Senior Adviser, Department of Geography.

Government and Politics

Although this department is administered by the College of Business and Public Administration, Government and Politics is a recognized major field for students in the College of Arts and Sciences, leading to the A.B. degree. Freshman and sophomores wishing to major in Government and Politics should consult their Lower Division Advisers about preparation for the major; addi-

tional information about the Government and Politics program may be obtained at the departmental office. Juniors and seniors majoring in Government and Politics are advised by the faculty of that department.

For further information concerning the courses offered in Government and Politics, see the catalog of the College of Business and Public Administration. The Government and Politics curriculum described in that catalog does not apply to students in the College of Arts and Sciences. Such students must complete instead the following requirements:

1. At least 33 semester hours of Government and Politics, in addition to G. & P. 1, American Government.
2. No course in which the grade is less than C, made after September 1947, may be counted as part of the major work.
3. An adequate diversification of study in the various fields of Government and Politics, under the guidance of the faculty of the Department.

If desired, students may specialize in state and local government, public administration, public law, public policy, political theory, comparative government, or international relations.

History

The study of history is basic for the cultural background of all fields of knowledge. In addition, the Department of History offers a curriculum which is designed to assist students who wish to prepare themselves for entering several fields of professional activity. Specifically these fields are (1) teaching history and the social sciences at the secondary level; (2) the field of journalism, which requires a broad historical background; (3) research and archival work; (4) the diplomatic service. In addition, the department offers adequate preparation and training for those who intend to pursue higher degrees and prepare themselves for teaching at the college level.

Undergraduate history majors must complete the following departmental requirements:

1. Every major is required to complete a minimum of 24 semester hours in advanced courses, with the following exceptions: (a) the total may be reduced by 3 credit hours for those students who, in addition to the prerequisites, have taken 6 credits in other courses under the 100 level; and (b) the total may be reduced by 6 credit hours for those who, in addition to the prerequisites, have completed 12 semester hours in courses under the 100 level.
2. No less than 15 nor more than 18 semester hours in advanced courses should be taken in any one field of history, e. g., European, American, or Latin American.
3. Prerequisites for majors in history are History 5 and 6 (required of all college students) and History 1 and 2.
4. All majors are required to take the proseminar during their senior year.
5. No grades of D in the major field will be counted toward completing the major requirements for graduation.

Honors in History: A student whose major is in History and who maintains an approved average in his grades may read for honors in History. A candidate for honors is examined upon an approved individual program of readings in an area of his special interest. Application may be made to the head of the Department of History between the second semester of the sophomore year and the first semester of the senior year.

PSYCHOLOGY

The Department of Psychology is classed in both the Division of Social Sciences (for the B.A. degree) and the division of Biological Sciences (for the B.S. degree) and offers educational programs related to both of these fields. The functions of the undergraduate curriculum in Psychology are to provide an organized study of the behavior of man, in terms of the biological conditions and social factors which influence such behavior. In addition, the undergraduate program in Psychology is arranged to provide a level of training that will equip the students to enter certain professional pursuits which require a background in this field. It is important to note, however, that the undergraduate degree in Psychology is not in itself recognized as carrying any professional status. The departmental requirements for the two baccalaureate degrees are presented with the description of courses in the department.

A minor program is organized to supplement the work in the major. For the Bachelor of Arts degree the minor program will ordinarily consist of courses in the Social Sciences and for the Bachelor of Sciences degree of courses in the Biological and Physical Sciences, with at least 6 hours in the 100 series in Zoology.

For students who plan to enter graduate and professional work in Psychology, it is recommended that among their minor or elective programs they take courses in Mathematics, Zoology, and Physics.

SOCIOLOGY

The major in Sociology offers a liberal education and at the same time provides a background for those professional fields which focus on an understanding of human relationships.

Departmental requirements consist of a minimum of 27 semester hours in Sociology (not including Sociology 1) and 18 hours in a minor. Of the latter at least 6 hours must be of 100 series courses in a single department. Sociology credit with a grade of less than C may not be counted toward the major requirement.

Courses required of all Sociology Majors:

Sophomore Year.....	Sociology 2, Principles of Sociology
Junior Year.....	Sociology 183, Social Statistics
Senior Year.....	Sociology 186, Sociological Theory
Senior Year.....	Sociology 196, Senior Seminar

There are several suggested areas of emphasis within the Sociology major, some with additional requirements:

(1) General Sociology.

- (2) Anthropology: Soc. 5, 13 or 113, 105, 123, 124, 125, 136, and 141. (Recommended minor—History, Geography, or Zoology; recommended basic sciences—Zoology or Botany.)
- (3) Community Studies: (Rural, urban, and suburban groups and their populations):—Soc. 13, 14, 112, 113, 114, 118, 121, 122. Recommended electives:—Economics, Education, Government and Politics, Geography).
- (4) Crime Control Curriculum (A four year professional program in the field of crime and delinquency and their prevention and control):—Soc. 51, 52, 114, 118, 131, 145 or 147, 153, 154, 156, and 191: B. A. 10; Econ. 37. Required minor:—Psychology, including Psych. 1, 2 or 5, 125, 128 or 131, 142 or 150, 161 or elective. (Recommended science:—Zool. 1, 141, 15.)
- (5) Sociology—Education (Fulfills requirements for secondary teaching certification):—Minor requirements—Ed. Human Development Ed. 100 and 101, Ed. 140, 145, 148; Am. His. 6 s. hrs., European His. 6 s. hrs.
- (6) Social Institutions (The structure and functioning of social institutions including the family, religion, economic, governmental, and educational): —Soc. 62, 64, 113, 115, 136, 161, 164, 171.
- (7) Preprofessional Social Work Curriculum (provides (1) preprofessional preparation for entering a professional social work school, and (2) qualifications for certain social work positions for which post-graduate professional education is not required):—Soc. 13 or 14, 52, 118, 131, 171, 174, 191; Econ. 37; G. & P. 4 or 5.
- (8) Social Psychology:—Soc. 5, 51, 112, 115, 123, 141, 144, 145. Minor—psychology or related field. (Recommended electives—Human Development Education and Zoology.)

GENERAL B.S. CURRICULUM

The curricula required of students majoring in departments of the Divisions of Biological Sciences and Physical Sciences vary much in regard to the year in which University and College required courses are scheduled in order to assure the proper sequential and prerequisite arrangement of major courses. The following curriculum, which gives the subjects required of students who plan to major in departments of the divisions of Biological or Physical Sciences, is, therefore, quite flexible; individual program must be prepared in consultation with the assigned adviser. Lower division advisers and department heads have available copies of normal curricula for distribution to students who wish additional information about majors in departments of these divisions.

Freshman Year

	Semester	
	I	II
Eng. 1, 2—Composition and American Literature.....	3	3
G. & P. 1—American Government (or Soc. 1).....	3	....
Soc. 1—Sociology of American Life (or G. & P. 1).....	....	3
Speech 7—Public Speaking .....	....	2
Mathematics - Science	8-9	8-10
A. S. 1, 2—Basic Air Force R.O.T.C. (Men).....	3	3
He. 2, 4—Health (Women)	1	1
Physical Activities	1	1
Total.....	17-19	17-20

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4 or 5, 6—Composition and English or World Literature	3	3
His. 5, 6—History of American Civilization.....	3	3
*Foreign Language	3	3
Mathematics - Science	9-12	9-12
A.S. 3, 4—Basic Air Force R.O.T.C. (Men).....	3	3
Physical Activities	1	1
Total.....	16-20	16-20

IV. THE BIOLOGICAL SCIENCES

Curriculum for General Biological Sciences

This program has been prepared for the student who is interested in biology but whose interest has not yet centered in any one of the biological sciences. This program is also a suitable one for the pre-dental student who plans to earn the B.S. degree before entering dental school. This program, however, is not recommended for the pre-medical student. The program includes work in Bacteriology, Botany, Entomology, and Zoology, and introduces the student to the general principles and methods of each of these biological sciences. The student may then emphasize any one of these areas in completing his program.

By proper selection of courses during the junior and senior years, a student may concentrate his work sufficiently in one area of biology to be able to continue in graduate work in that field. However, a student who is definitely planning to do graduate work would be well-advised to major in one specific field of biology as soon as his interest becomes definite.

The student following this program must meet the general requirements for a degree in the College of Arts and Sciences. He should select French or German to meet the foreign language requirement and Speech 7 (or Speech 1, 2) to fulfill the requirement in Speech.

Required introductory courses in the Biological Sciences: Bacteriology 1; Botany 1; Entomology 1; Zoology 1. These courses must be passed with an average grade of at least C. The pre-dental student must take Zoology 2 as well.

Required supporting courses in Mathematics and the Physical Sciences: Mathematics 10, 11; Chemistry 1, 3; Physics 10, 11. The student working in most areas of biology will also need a year of Organic Chemistry (Chemistry 31, 32, 33, 34 or Chemistry 35, 36, 37, 38). Additional work in Chemistry may also be required by the student's adviser, in accordance with the needs of the student's field of emphasis. The pre-dental student must include Chemistry 35, 36, 37, 38 in his program.

Advanced courses in the Biological Sciences: The student must complete at least 30 semester hours of advanced work selected from the fields of Bacteri-

*A placement test is given during Registration Week for students wishing to pursue a language they have studied in high school. Some departmental curricula require German. Most of the departments prefer or require that the second year be in Scientific French or German (Fr. or Ger. 6, 7).

ology, Botany, Entomology, and Zoology. Of these credits at least 18 must be at the 100 level and taken in at least two of the four departments. The following courses in Psychology may be counted as part of the required 30 semester hours but may **not** be used to satisfy the requirement of 18 semester hours at the 100 level: Psychology 106, 126, 136, 145, 180, 181, 195.

A junior or senior following this curriculum will be advised by the department in which he plans to do the most work.

Courses required in major and minor: Zool. 1—General Zoology (4); Bot. 1—General Botany (4); Chem. 1, 3—General Chemistry (4, 4); Ent. 1—Introductory Entomology (3); Bact. 1—General Bacteriology (4); Math. 10, 11—Algebra, Trigonometry and Analytic Geometry (3, 3); Phys. 10, 11—Fundamentals of Physics (4, 4); electives in Biological Sciences (30).

BACTERIOLOGY

The Department of Bacteriology functions with three purposes in view. One of these is to provide fundamental training for those students who choose bacteriology as a major subject. Two major fields of study are provided: (1) applied bacteriology, in preparation for such positions as dairy, sanitary, or agricultural bacteriologists in federal, state, and commercial laboratories, and (2) medical bacteriology, or the more recently recognized specialty of medical technology in relation to hospital, public health, and clinic laboratories. The second objective of the department is to provide desirable courses for those students who are majoring in closely allied departments and desire vital supplementary information. Every effort has been made to plan these courses so that they satisfy the demands of these related departments as well as the needs of those students who have chosen bacteriology as a major. The third purpose of the department is to encourage and foster original thought in the pursuit of research.

Bacteriology Curriculum:—The field of bacteriology is too vast in scope to permit specialization in the early stages of undergraduate study. Accordingly, the applied curriculum outlined below includes the basic courses in bacteriology and allied fields.

The course in *Advanced General Bacteriology* (Bact. 5) is required for all bacteriology majors, and should follow *General Bacteriology* (Bact. 1). *Bacteriology* 5 is not required as a prerequisite for upper division courses for majors in other departments provided the student has been introduced to certain aspects of bacteriology, or their equivalent, pertinent to their specialty. *Bacteriology* 1, however, is required.

A student planning a major in Bacteriology should consult his adviser during the first year concerning his particular field of study and his choice of a minor. The minor should be chosen only from the biological or physical sciences. Chemistry, as outlined below, is the preferred minor.

A grade of D in a course in bacteriology will not be counted toward completing the major requirements for graduation.

Courses required in major and minor:—Bact. 1—General Bacteriology (4); Bact. 5—Advanced General Bacteriology (4); Bact. 101—Pathogenic Bacteriology (4); Bact. 131—Food and Sanitary Bacteriology (4); Bact. 60, 62—Bacteriological Literature (1, 1); Bact. 103—Serology (4); Bact. 161—Systematic Bacteriology (2); Chem. 1, 3—General Chemistry (4, 4); Chem. 31, 32, 33, 34—Elements of Organic Chemistry (3, 3); Chem. 161, 162, 163, 164—Biochemistry (4, 4); Math. 10, 11—Algebra, Trigonometry and Analytic Geometry (3, 3); Physics 10, 11—Fundamentals of Physics (4, 4).

Medical Technology Program: This is a professional program intended for those students who wish to prepare for technical work in any type of a medical laboratory. Because of its technical nature, it is broader in requirements and allows fewer electives. By proper planning of one's schedule beginning in the sophomore year, courses in zoology may be taken in place of electives or certain courses in bacteriology. These courses should include Zoology 1, General Zoology; Zoology 16, Human Physiology; Zoology 108, Animal Histology; Zoology 110, Parasitology; and the following courses in bacteriology; Bacteriology 105, Clinical Methods; and Bacteriology 108, Epidemiology.

The student who elects this program should try to obtain summer employment in a medical laboratory. This program is so designed that a student, with proper planning, can prepare himself for admission to any of the training schools for medical technology located in various hospitals. These training schools require two, three, or four years of collegiate work, and after one year of hospital apprenticeship, the student is eligible to take examinations for the Registry of Medical Technologists of the American Society of Clinical Pathologists (M.T.) if he so desires.

BOTANY

Botany is recognized as either a major or minor field in Arts and Sciences, leading to the B.S. degree. The Botany Department is administered by the College of Agriculture, but students register for botany courses and major or minor in this subject just as if the department were in the College of Arts and Sciences. Course descriptions and further information about the Botany Department are given in the catalog for the College of Agriculture.

Freshmen and sophomores should consult their lower division adviser and also the Botany Department adviser, in planning the major program. The four lower division courses, General Botany—Bot. 1 and 2, Diseases of Plants—Bot. 20, and Plant Taxonomy—Bot. 11, total 14 credit hours and should be taken during the first two years. Sufficient upper division courses to give a total of 40 credit hours in botany must be taken. Included in these will be Plant Physiology—Bot. 101, Plant Microtechnique—Bot. 110, Plant Anatomy—Bot. 111, Plant Ecology—Bot. 102, and Structure of Economic Plants—Bot. 115. The botany electives chosen depend, in part, on the student's chief interest.

To support the courses in botany, major students are required to take

General Chemistry—Chem. 1 and 3, Mathematics—Math. 10 and 11 as a minimum, Physics—Phy. 10 and 11, General Zoology—Zool. 1, General Bacteriology—Bact. 1, Genetics—Zool. 104, and 12 hours of a modern language, preferably German.

PSYCHOLOGY

The Department of Psychology is classed in both the Division of Biological Sciences and the Division of Social Sciences, and offers educational programs to both these fields.

Further details on the two available undergraduate curricula in Psychology are given elsewhere in these pages.

ZOOLOGY

Two courses of study have been established as described below. At least thirty-five hours of zoology are required for a major in the department. Of these thirty-five hours at least eighteen must be at the 100 level. Zoology 14, 15, 53, and 55S will not be counted as part of the Zoology major requirements. A grade of D in a course in zoology will not be counted toward completing the major requirements for graduation.

Zoology

Copies of the suggested curricula for majors in zoology who are interested in any phase of animal study, pre-medical training, and pre-dental training are available from advisers and from the zoology office.

Courses required for all majors in zoology are: Zool. 1, 2—General Zoology and Advanced General Zoology (4, 4); Zool. 5—Comparative Vertebrate Morphology (4); Zool. 20—Vertebrate Embryology (4); Zool. 75 or 76—Journal Club (1); Zool. 102—General Animal Physiology (4); Zool. 104—Genetics (3); and Zool. 121—Principles of Animal Ecology (3).

Minor work shall consist of courses in supporting sciences as follows: Math. 10, 11—Algebra, Trigonometry and Analytic Geometry (3, 3) or Math. 18, 19—(5, 5); Phys. 10, 11—Fundamentals of Physics (4, 4); Chem. 1, 3—General Chemistry (4, 4); Organic Chemistry—Chem. 31, 32, 33, 34 (6) or Chem. 35, 36, 37, 38 (8); and one of the following courses: Bot. 2—Second semester of General Botany (4); Chem. 19—Elements of Quantitative Analysis (4); or Math. 20, 21—Calculus (4, 4).

Fisheries

The aquatic resources of Maryland offer an excellent opportunity for the study of fisheries and marine zoology. In addition to the courses specified for other majors in zoology, students interested in following the fisheries curriculum must take: Zool. 118—Invertebrate Zoology (4); Zool. 125—Fisheries Biology and Management (3); Zool. 126—Shellfisheries (3); and Zool. 127—Ichthyology (3).

The minor and supporting courses must include, in addition to those speci-

fied above, the following: Chem. 15—Qualitative Analysis (4); Chem. 19—Elements of Quantitative Analysis (4); German 1, 2—Elementary German (3, 3); German 6, 7—Intermediate Scientific German (3, 3).

The student in this curriculum is also required to spend part of his summers in practical work in fisheries.

V. THE PHYSICAL SCIENCES

Curriculum for General Physical Sciences

This program has been prepared for the student who desires an introduction to the physical sciences but whose interest has not yet centered in any one field of the physical sciences. The program includes some advanced work in Chemistry, Mathematics, and Physics, and permits the student to emphasize one of these fields without having to meet the full requirements for a major in one specific field. The program is suitable for the pre-medical or pre-dental student who plans to complete the requirements for the B.S. degree before entering medical or dental school. This program is also suitable for the woman student who is interested in science and wishes to become a technical assistant or technical writer in one of these fields, but who does not plan to do graduate work. The program is not recommended for students who may later do graduate work in mathematics or in one of the physical sciences.

The student following this program must meet the general requirements for a degree in the College of Arts and Sciences. He should select French or German to meet the foreign language requirement and Speech 7 (or Speech 1, 2) to fulfill the requirement in Speech.

Required introductory courses in Mathematics and the Physical Sciences: Mathematics 18, 19; Chemistry 1, 3; Physics 10, 11 (or 20, 21). These courses must be passed with an average grade of at least C for the student to be eligible to continue with this program.

Required supporting courses for pre-medical or pre-dental students: The pre-dental student must include Zoology 1, 2 in his program and must include Chemistry 35, 36, 37, 38 in his advanced work in this program. The pre-medical student must include Zoology 1, 2, 5, 20 in his program and must include Chemistry 19, 35, 36, 37, 38 in his advanced work in this program. Students interested in technical writing should take English 7, in addition to the courses in English required of all students.

Advanced courses in Mathematics and the Physical Sciences: The student must complete at least 36 semester hours of advanced work selected from the departments of Chemistry, Mathematics, and Physics. Of these credits at least 18 must be at the 100 level and taken in at least two of the three departments. The student should normally take Calculus (Math. 20, 21) inasmuch as practically all the advanced work in Mathematics and Physics requires Calculus.

Chemistry

The science of chemistry is so broad that completion of a well-planned course of undergraduate study is necessary before specialization. The cur-

riculum outlined below describes such a course of study. The sequence of courses given should be followed as closely as possible; it is realized, however, that some deviation from this sequence may be necessary toward the end of the program. All of the courses in chemistry listed, unless otherwise designated, are required of students majoring in chemistry.

First Year: Chem. 1, 3—General Chemistry (4, 4); Math. 18, 19—Elementary Mathematical Analysis (5, 5); Speech 7—Public Speaking (2). **Second Year:** Chem. 15—Qualitative Analysis (4); Chem. 21—Quantitative Analysis (4); Chem. 35, 37—Elementary Organic Chemistry (2, 2); Chem. 36, 38—Elementary Organic Laboratory (2, 2); Math. 20, 21—Calculus (4, 4); German 1, 2—Elementary German (3, 3). **Third Year:** Chem. 123—Quantitative Analysis (4); Chem. 141, 143—Advanced Organic Chemistry (2, 2); Chem. 144—Advanced Organic Laboratory (2); Phys. 20, 21—General Physics (5, 5); German 6, 7—Intermediate Scientific German (3, 3); Electives (1-2, 2-3). **Fourth Year:** Chem. 101—Advanced Inorganic Chemistry (2); Chem. 187, 189—Physical Chemistry (3, 3); Chem. 188, 190—Physical Chemistry Laboratory (2, 2); Chem. 146—The Identification of Organic Compounds (2); Electives (5-8, 5-8); English 7 is strongly recommended).

Mathematics

This curriculum offers training in the fundamentals of Mathematics in preparation for teaching, industrial work, or graduate work in Mathematics.

No grade of D in the major field will be counted toward completion of the requirements for graduation in the mathematics curriculum. An average grade of C is required in the minor.

The mathematics curriculum offers two options depending on the choice of electives in the Junior and Senior years.

Pure Mathematics option. Electives in mathematics must include three hours in each of the fields of algebra and geometry.

Applied Mathematics option. Electives in mathematics must include six hours in the fields of algebra and geometry, and at least six hours in the field of applied mathematics. Minor electives will be selected from the Physical Sciences or Engineering in consultation with the Head of the department of Mathematics.

Honors in Mathematics

Students majoring in mathematics who complete freshman and sophomore courses in mathematics with distinction are eligible to try for honors in mathematics. To receive the honors degree in mathematics, a student must (1) complete the curriculum in mathematics with an average grade of B in all subjects; (2) earn a creditable grade in Math. 190, 191; (3) pass an honors examination in mathematics at the end of the senior year. Students who wish to try for honors in mathematics should apply to the Head of the Department, preferably by the conclusion of their sophomore year and certainly no later than the beginning of their senior year.

Courses required in major: Math. 18, 19—Elementary Mathematical Analysis (5, 5); Math. 20, 21—Calculus (4, 4); Math. 110, 111—Advanced Calculus (3, 3); Math. 114—Differential Equations (3); Phys. 20, 21—General Physics

(5, 5). The foreign language requirement should be satisfied by either German or French.

Physics

The Physics curriculum is designed for students who desire training*in the fundamentals of Physics in preparation for graduate work or teaching, and for positions in governmental and industrial laboratories. All students must take as their introductory physics course either Physics 10, 11, Fundamentals of Physics (4, 4), or Physics 20, 21, General Physics (5, 5). After the elementary physics course, courses specifically required as a part of the Physics major are Physics 50, 51, Intermediate Mechanics (2, 2); Physics 52, Heat (3); Physics 102, Optics (3); Physics 104, 105, Electricity and Magnetism (3, 3); Physics 118, Introduction to Modern Physics (3); Physics 119, Modern Physics (3); and at least four credits of laboratory. The remainder of the major program may be selected from other available physics courses. (Students who wish to be recommended for graduate work in Physics must also include Physics 106, Theoretical Mechanics (3); Physics 11y, Fundamental Hydrodynamics (3); Physics 120, Nuclear Physics (4); and Physics 122, Properties of Matter (4). The following courses are required as a part of the students minor: Math. 18, 19, Elementary Mathematical Analysis (5, 5); and Math. 20, 21, Calculus (4, 4). The remainder of the minor program must include six credits of 100-level courses selected in any allied field in accordance with the needs of the student. Recommended course programs are available from the Physics Department. Students may major in Physics only if a grade of C is attained in each semester of the elementary physics courses and in the required mathematics courses.

VI. PRE-PROFESSIONAL CURRICULA

COMBINED PROGRAM IN ARTS AND SCIENCES AND LAW

Some law schools will consider only those applicants who have completed a four-year college program leading to the A.B. or B.S. degree. Other law schools, including the School of Law of the University of Maryland, will accept applicants who have successfully completed a three-year program of academic work. Law schools do not prescribe the specific courses which the student should take in his pre-law work, but do require that the student follow one of the standard programs offered by the undergraduate college.

Four-year Program: The student who plans to complete the requirements for the A.B. or B.S. degree before entering law school should select one of the major fields for concentration. Pre-law students most commonly select one of the following subjects as their major: American Civilization, Economics, English, Government and Politics, History, Philosophy, Psychology, Sociology, Speech. During his first two years, the pre-law student will normally follow the General A.B. Curriculum described earlier in these pages. During his junior and senior year, the pre-law student will complete the major and minor requirements for the A.B. degree. The requirements in the various major fields are described elsewhere in this catalog.

Three-year Program: The student who plans to enter law school at the

end of his third year should follow the General A.B. Curriculum during his first two years. During his junior year he will complete the requirements for a minor (18 semester hours) in one of the fields of concentration. He will also be able to take some additional courses as electives. His program for the first three years must include all of the basic courses required for a degree from the College of Arts and Sciences and a minor of 18 semester hours as approved by his pre-law adviser. He must earn a total of 92 academic semester hours, exclusive of the credits in ROTC (men), Health (women), and Physical Education required of all undergraduate students.

Combined degree in Arts and Sciences and Law: The student who successfully completes the three-year program (including the minor) described above and who is admitted to the School of Law of the University of Maryland will be eligible for the Bachelor of Arts degree after the successful completion of one year of full-time courses in the School of Law in Baltimore (or the equivalent in semester hours of work in the Evening Division of the School of Law). The completion of a year's work in the Law School constitutes the student's major. The combined program must include at least 120 academic semester hours, exclusive of required work in ROTC (men), Health (women), and Physical Activities. The student must earn at least a C average in all of his work at College Park, and at least a C average in 28 semester hours of work in the School of Law. A student who enters the combined program with advanced standing must complete the final 30 academic semester hours of pre-law work in residence in the College of Arts and Sciences. Eligible candidates are recommended for the degree of Bachelor of Arts by the Faculty of the College of Arts and Sciences upon the concurrent recommendation of the Dean of the School of Law.

The course of study at the School of Law requires three years of full-time work for completion. Students who successfully complete the program are awarded the degree of Bachelor of Laws.

COMBINED PROGRAM IN ARTS AND SCIENCES AND DENTISTRY

Candidates for admission to dental schools should normally plan to take at least a three-year undergraduate program. Although the School of Dentistry of the University of Maryland considers some applications from students with only two years of undergraduate preparation, it requires three years of the great majority of its candidates and expects these candidates to meet the full requirements of the combined degree in Arts and Sciences and Dentistry as described below.

Certain science courses are prescribed for all candidates for dental school: Zoology 1, 2; Chemistry 1, 3, 35, 36, 37, 38; Mathematics 10, 11 (or 18, 19); Physics 10, 11 (or 20, 21). These courses must be included in any pre-dental program. The student who wishes to be a candidate at the end of his second year must complete all of these courses during the first two years. All requirements must be completed by June of the year in which the student expects to enter dental school.

Neither successful completion of a pre-dental program nor of degree requirements guarantees admission to a dental school. All dental schools, includ-

ing that of the University of Maryland, have their own admission requirements and procedures. Dental Schools expect candidates to attain an academic average substantially higher than the minimum average required for graduation from college. Through its pre-dental advisers and its Committee on the Evaluation of Pre-Dental Students this college attempts to assist its applicants with their problems.

Four-year program: The student electing this program should select one of the major fields in which the A.B. or B.S. degree is offered. Pre-dental students following the four-year program most commonly select one of the following subjects as their major field: Bacteriology, General Biological Sciences, General Physical Sciences, Psychology, Zoology. These programs are described elsewhere in this catalog. However, a student may meet dental school requirements in most of the majors offered in the College of Arts and Sciences, provided that he includes in his program the science courses specifically prescribed by dental schools. The student's pre-dental adviser will assist the student in planning a program which will meet both the dental school requirements and also the requirements for the A.B. or B.S. degree.

Three-year program: The student electing to follow this program must complete all the courses specifically required by the dental school. He must earn a total of 90 academic semester hours in addition to the credits in ROTC (men), Health (women), and Physical Activities required of all undergraduate students. He must complete a minor (18 semester hours) as approved by his pre-dental adviser. He must follow very carefully the program as outlined below:

Freshman year: English 1, 2; Zoology 1, 2; Chemistry 1, 3; Mathematics 10, 11; ROTC (men); Health 2, 4 (women); Physical Activities.

Sophomore year: English 3, 4 or 5, 6; Sociology 1; Government and Politics 1; Chemistry 35, 36, 37, 38; History 5, 6; Foreign Language (French or German or Latin); ROTC (men); Physical Activities.

Note: Students planning to apply for admission to Dental School at the end of the second year must take Physics 10, 11, in place of History 5, 6. The student who takes the two-year program will not be eligible for the Bachelor of Science degree.

Junior year: Physics 10, 11; Foreign Language (continued); Speech 7; minor courses as approved by a pre-dental adviser; electives.

Any student who begins the three-year program may change to a four-year program by making a choice of a major field and adjusting his program accordingly. However, the student is warned that some courses necessary in certain majors must be taken in the sophomore year in order for the student to be eligible for the more advanced courses in that field given in the junior and senior year.

Combined degree in Arts and Sciences and Dentistry: The student who successfully completes the three-year program (including the minor) described above and who is admitted to the School of Dentistry of the University of Maryland will be eligible for the Bachelor of Science degree after successful

completion of the first year in the School of Dentistry. The completion of a year's work in the School of Dentistry constitutes the student's major. The combined program must include at least 120 academic semester hours, exclusive of required work in ROTC (men), Health (women), and Physical Activities. The qualitative grade requirements of the College of Arts and Sciences and of the University must also be fulfilled. A student who enters the combined program with advanced standing must complete the final 30 semester hours of pre-dental work in residence in the College of Arts and Sciences. Eligible candidates are recommended for the degree of Bachelor of Science by the Faculty of the College of Arts and Sciences upon the concurrent recommendation of the Dean of the School of Dentistry.

The course of study at the School of Dentistry requires four years for completion. Students who successfully complete the program are awarded the degree of Doctor of Dental Surgery.

COMBINED PROGRAM IN ARTS AND SCIENCES AND MEDICINE

The student planning to request admission to a medical school must pursue a course of study which meets the requirements prescribed by the Council of Medical Education of the American Medical Association and those added or recommended by the particular medical school of his choice.

Some medical schools will consider only those applicants who will have completed a four-year college program and will have earned the A.B. or B.S. degree at the time of entrance into medical school. Other medical schools will consider applicants who will have completed three years of college work. The School of Medicine of the University of Maryland accepts some candidates who will have completed only three years of college work but looks with more favor upon the four-year program for most students. Both the four-year program and the three-year program are described below. In both programs all required science courses must be completed by June of the year in which the student expects to enter medical school.

Neither successful completion of a pre-medical program nor of degree requirements guarantees admission to any medical school. All medical schools, including that of the University of Maryland, have their own admission requirements and procedures. Medical schools expect candidates to have attained an academic average substantially higher than the minimum average required for graduation from college. Through its Committee on the Evaluation of Pre-medical Students this college attempts to assist its applicants with their problems.

Four-year Program: The student electing this program should select one of the major fields in which the A.B. or B.S. degree is offered. In addition to meeting all general degree requirements and the specific requirements of the major selected, the pre-medical student must include in his program the following **required** pre-medical courses: Zoology 1, 2, 5, 20; Chemistry 1, 3, 19, 35, 36, 37, 38; Mathematics 10, 11 (or 18, 19); Physics 10, 11 (or 20, 21).

Pre-medical students, following the four-year program, most commonly select one of the following subjects as their major field: Bacteriology, General Physical Sciences, Psychology, Zoology. These programs are described else-

where in this catalog. However, a student may meet medical school requirements in most of the majors offered in the College of Arts and Sciences, provided that he includes in his program the individual courses specifically prescribed by medical schools. The student's pre-medical adviser will assist the student in planning a program which will meet both the medical school requirements and also the requirements for the A.B. or B.S. degree.

Three-year program: The student electing to follow this program must complete all of the courses specifically required by the medical school. He must earn a total of 90 academic semester hours in addition to the credits in ROTC, (men), Health, (women), and Physical Activities required of all undergraduate students. He must follow very carefully the program as outlined below:

Freshman year: English 1, 2; Government and Politics 1; Sociology 1; Mathematics 10, 11; Chemistry 1, 3; Zoology 1, 2; ROTC (men); Health 2, 4 (women); Physical Activities.

Sophomore year: English 3, 4 or 5, 6; Chemistry 35, 36, 37, 38; Zoology 5, 20; Foreign Language (French or German or Latin); ROTC (men); Physical Activities.

Junior year: History 5, 6; Foreign Language (continued); Chemistry 19; Physics 10, 11; Speech 7; Psychology 1; minor courses as approved by the pre-medical adviser.

Any student who begins the three-year program may change to the four-year program by making a choice of a major field and adjusting his program accordingly. However, the student is warned that some courses necessary in certain majors must be taken in the sophomore year in order for the student to be eligible for the more advanced courses in that field given in the junior and senior years. The majority of students would therefore be wise to plan a four-year program on entrance and not attempt the highly concentrated three-year program.

Combined degree in Arts and Sciences and Medicine: The student who successfully completes the three-year program (including the minor) described above and who is admitted to the School of Medicine of the University of Maryland will be eligible for the Bachelor of Science degree after successful completion of the first year in the School of Medicine. The completion of a year's work in the School of Medicine constitutes the student's major. The combined program must include at least 120 academic semester hours, exclusive of the required work in ROTC (men), Health (women), and Physical Activities. The qualitative grade requirements of the College of Arts and Sciences and of the University must also be fulfilled. A student who enters the combined program with advanced standing must complete the final 30 semester hours of pre-medical work in residence in the College of Arts and Sciences. Eligible candidates are recommended for the degree of Bachelor of Science by the Faculty of the College of Arts and Sciences upon the concurrent recommendation of the Dean of the School of Medicine.

The course of study at the School of Medicine requires four years for completion. Students who successfully complete the program are awarded the degree of Doctor of Medicine.

Senior Year

The curriculum of the first year of the School of Medicine of the University of Maryland is accepted by the College of Arts and Sciences as the fourth year (major sequence) of academic work toward the degree.

If at the beginning of the Senior Year the student decides to postpone his entrance to Medical School and to remain in the College of Arts and Sciences and complete work for the Bachelor's Degree, he must choose a major. Because of the general nature of the first three years of his curriculum, the student has open to him a wide choice of departments in which he may specialize.

AMERICAN CIVILIZATION

Committee on American Civilization; Professor Bode,
Executive Secretary; Professors Gewehr, Hoffsommer, Murphy, Plischke.

Amer. Civ. 137, 138. Conference Course in American Civilization (3, 3).
First and second semesters.

Four American classics (drawn from fields of the departments of English, Government and Politics, History, and Sociology, which cooperate in the program) are studied each semester. Specialists from the appropriate departments lecture on these books. For this academic year the classics are: Franklin's *Autobiography*, De Tocqueville's *Democracy in America*, Schlesinger's *The Age of Jackson*, and Thoreau's *Walden*; for the second semester, Twain's *The Adventures of Huckleberry Finn*, Howells' *The Rise of Silas Lapham*, the Lynds' *Middletown*, and Myrdal's *An American Dilemma*. Through these books and the lectures on them, the student's acquaintance with American culture is brought to a focus.

This course is required for seniors majoring in the American Civilization program. The course also counts as major credit in any of the four cooperating departments; a student may take either or both semesters. (Bode and cooperating specialists.)

The student majoring in American Civilization can obtain his other courses principally from the offerings of the departments of English, History, Government and Politics, and Sociology.

ART

Professor Wharton; Associate Professors Siegler, Lembach; Assistant Professor Maril; Instructors Grubar and Stites.

Art. 1. Charcoal Drawing (Basic Course) (3)—Three two-hour laboratory periods per week. (Siegler.)

Drawing from casts, preparatory to Life and Portrait drawing and painting. Stress is placed on fundamental principles, such as the study of relative proportions, values, and modeling, etc.

Art 2. Charcoal Drawing (3)—Three two-hour laboratory periods per week. Drawing from model, (head and figure) with emphasis on structure and movement. (Siegler.)

Art 3. Rendering (1)—One two-hour laboratory period per week.

Methods of rendering architectural and landscape architectural drawings. Included are: techniques of monotone wash, water color, and the use of perspective, shades, and shadows. (Stites.)

Art. 5, 6. Still-life (3, 3)—One lecture hour and five laboratory hours per week.

Art 5—Basic Course devoted to elementary theory and practice of drawing and color. Methods of linear and tonal description with emphasis on perspective and form principles. Second half semester, elementary theory and practice oil painting. Elementary theory and practice of composition introduced and utilized. Art 6, advanced problems with different media. (Lembach.)

Art 7, 8. Landscape Painting (3, 3)—Three two-hour laboratory periods per week.

Drawing and painting; organization of landscape material with emphasis on compositional structure. (Maril.)

Art 9. Historical Survey of Painting, Sculpture, and Architecture (3).

An understanding of the cultures from Prehistoric times to the Renaissance, as expressed through painting, sculpture, and architecture. (Grubar and Stites.)

Art 10. History of American Art (1).

A resume of the development of painting, sculpture and architecture in this country. (Grubar.)

Art 11. Historical Survey of Painting, Sculpture, and Architecture (3).

Designed to continue the survey begun in Art 9. The course is concerned with the development of painting, sculpture, and architecture from the Renaissance to the present day. (Grubar and Stites.)

Art 13, 14. Elementary Sculpture (2, 2)—Two two-hour laboratory periods per week.

Study of three-dimensional compositions in round and bas-relief. Mediums used: clay, plasteline.

Art 15. Fundamentals of Art (3)—Three two hour laboratory periods per week.

This course emphasizes the fundamental principles of the creative, visual arts for those wishing to teach. It includes elements and principles of design, perspective, and theory of color. Studio practice is given in the use and application of different media. (Lembach.)

Art 20. Art Appreciation (2).

An introduction to the technical and aesthetic problems of the artist. The student becomes acquainted with the elements that go into a work of the visual arts. He is made aware of the underlying structure that results in the "wholeness" of an art work. He will see examples (original and reproductions) of masterpieces of art. (Lembach.)

Art 100, 101. Art Appreciation (2, 2).

This course enables students to get a basis for understanding works of art. It investigates the forms and backgrounds of painting, sculpture and architecture. (Grubar.)

Art 102, 103. Creative Painting (3, 3)—Three two-hour laboratory periods per week. Prerequisites, Art 1, 5, and 7.

Assignments of pictorial compositions aimed at both mural decoration and easel picture problems. The formal values in painting are integrated with the student's own desire for personal expression. (Maril.)

Art 104, 105. Life Class (Drawing and Painting, Intermediate) (3, 3)—

Three two-hour laboratory periods per week. Prerequisites, Art 1 and 5.

Careful observation and study of the human figure for construction, action, form, and color. (Siegler.)

Art 106, 107. Portrait Class (Drawing and Painting) (3, 3)—One lecture hour and five laboratory hours per week. Prerequisites, Art 1 and 5.

Thorough draftmanship and study of characterization and design stressed. (Wharton.)

Art. 108, 109. Modern Art (2, 2).

A survey of the developments in various schools of modern art. Works of art analyzed according to their intrinsic values and in their historical background. Collections of Washington and Baltimore are utilized. (Grubar.)

Art 113, 114. Illustration (3, 3)—Two three-hour laboratory periods per week. Prerequisites, Art 1, 5, 104.

This course is designed for the purpose of channeling fine art training into practical fields, thereby preparing the student to meet the modern commercial advertising problems. Special emphasis will be placed upon magazine and book illustrating. (Sieglar.)

Art 115, 116. Still Life Painting (Advanced) (3, 3)—Two three-hour laboratory periods per week. Prerequisite, Art 6.

This course is for those who have completed Art 6 and wish to specialize in Still Life Painting. (Wharton.)

Art 154, 155. Life Drawing and Painting (Advanced) (3, 3)—Three two-hour laboratory periods per week. Prerequisite, Art. 105.

This course is for those who have completed Art 105 and wish to develop greater proficiency in the use of the figure in creative work. (Sieglar.)

Art 156, 157. Portrait Painting (Advanced) (3, 3)—Two three-hour laboratory periods per week. Prerequisite, Art 106, 107.

This course is for those who have completed 106, 107 and wish to specialize in portraiture. (Wharton.)

Art 170, 171. History of Ancient Painting (2, 2)—Prerequisite, Art 9.

A study of the development of painting and related arts from the prehistoric to the Roman period. (Grubar.)

Art 174. History of Ancient Architecture (2)—First semester. Prerequisite, Art 9.

The evolution of architectural styles from prehistoric through Roman periods including the practical, structural, artistic, and cultural aspects. (Stites.)

Art. 180. History of Medieval Architecture (2)—Second semester. Prerequisite, Art 9.

A continuation of Art 174 including the evolution of architectural styles from the Early Christian through the Gothic period. (Stites.)

Art. 185, 186. Renaissance and Baroque Art in Italy (2, 2). Prerequisite, Art 11.

The first term is concerned with the emergence and development of Renaissance painting, sculpture, and architecture through the first quarter of the 16th century. In the second term Mannerism and the Baroque phases are discussed. (Grubar and Stites.)

Art. 188, 189. History of 16th and 17 Century Painting (2, 2)—Prerequisite, Art. 11.

A study of the development of painting and related arts. The first semester study will center on Italian painting in the 16th and 17th centuries and the emergence of Baroque style. During the second semester, the paintings of France, Spain, England, and the Low Countries will be considered. (Grubar.)

Art 190, 191. Special Problems in Art (3, 3)—Two three-hour laboratory periods per week. Permission of Department Head.

Designed to offer the advanced art student special instruction in areas not offered regularly by the Department. (Staff.)

BACTERIOLOGY

Professors Faber, Hansen, Pelczar; Visiting Professors Hilleman, Warren;
Associate Professors Laffer, Doetsch; Lecturer Kent.

Bact. 1. General Bacteriology (4)—First and second semesters. Summer School. Two lecture and two two-hour laboratory periods a week.

The physiology, culture and differentiation of bacteria. Fundamental principles of microbiology in relation to man and his environment. Laboratory fee, \$10.00. (Pelczar.)

Bact. 5. Advanced General Bacteriology (4)—Second semester. Summer school. Two lecture and two two-hour laboratory periods a week. Prerequisite, Bact. 1 and Chem. 3.

Emphasis will be given to the fundamental procedures and techniques used in the field of bacteriology. Lectures will consist of the explanation of various procedures. Laboratory fee, \$10.00. (Laffer.)

Bact. 51. Household Bacteriology (3)—Second semester. Two lecture and one two-hour laboratory periods a week. For home economics students only.

Morphology and Physiology of the bacteria, yeasts, and molds. Application of the effect of chemical and physical agents in the control of microbial growth. Relationship of microbiology to home sanitation, food preservation and manufacture; personal and community hygiene. Laboratory fee, \$10.00. (Doetsch.)

Bact. 55. Sanitary Bacteriology for Engineers (2)—First semester. One lecture and one two-hour laboratory period a week. For junior and senior students in engineering only.

Discussion of the fundamental principles of bacteriology and their relationship to water supply, sewage disposal, and other sanitary problems. Demonstration of these principles in the laboratory. Laboratory fee, \$10.00. (Laffer.)

Bact. 60, 62. Bacteriological Literature (1, 1)—First and second semesters. One lecture period a week. Prerequisite, a major in bacteriology with junior standing. Introduction to periodical literature, methods, interpretation and presentation of reports. (Doetsch.)

For Advanced Undergraduates and Graduates

Bact. 101. Pathogenic Bacteriology (4)—First semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, Bact. 5.

The role of microorganisms in the diseases of man and animals with emphasis upon the differentiation and culture of bacterial species, types of disease, modes of disease transmission; prophylactic, therapeutic and epidemiological aspects. Laboratory fee, \$10.00. (Faber.)

Bact. 103. Serology (4)—Second semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, Bact. 101.

Infection and resistance; principles and types of immunity; hypersensitiveness. Fundamental techniques of major diagnostic immunological reactions and their application. Laboratory fee, \$10.00. (Faber.)

Bact. 104. History of Bacteriology (1)—First semester. One lecture period a week. Prerequisite, a major or minor in bacteriology.

History and integration of the fundamental discoveries of the science. The modern aspects of cytology, taxonomy, fermentation, and immunity in relation to early theories. (Doetsch.)

Bact. 105. Clinical Methods (4)—First semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, consent of instructor.

A practical course designed to integrate clinical laboratory procedures in terms of hospital and public health demands. Examination of sputum, feces, blood, spinal fluids, urine, etc. Laboratory fee, \$10.00. (Faber.)

Bact. 108. Epidemiology and Public Health (2)—Second semester. Two lecture periods a week. Prerequisite, Bact. 1.

History, characteristic features, and epidemiology of the important communicable diseases; public health aspects of man's struggle for existence; public health administration and responsibilities; vital statistics. (Faber.)

Bact. 121. Advanced Methods (4)—Second semester. Two lectures and two two-hour laboratory periods a week. Prerequisite, consent of instructor.

The application of specialized equipment and techniques for analysis of bacteriological problems. Laboratory fee, \$10.00. (Hansen and Pelczar.)

Bact. 131. Food and Sanitary Bacteriology. (4)—Second semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, Bact. 1.

The relationship of microorganisms to fresh and preserved food and methods of control. Bacteriological and public health aspects of water supplies and sewage disposal, restaurant and plant sanitation, insect and rodent control. Laboratory fee, \$10.00. (Laffer.)

Bact. 133. Dairy Bacteriology (4)—First semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, Bact. 1.

Relation of bacteria, yeasts, and molds to milk, cream, butter, ice cream, cheese, and other dairy products. Standard methods of examination, public health requirements, plant sanitation. Occasional inspection trips. Laboratory fee, \$10.00. (Doetsch.)

Bact. 135. Soil Bacteriology (4)—Second semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, Bact. 1.

The role played by microorganisms in the soil; nitrification, denitrification, nitrogen-fixation, and decomposition processes; cycles of elements; relationships of microorganisms to soil fertility. Laboratory fee, \$10.00. (Hansen.)

Bact. 161. Systematic Bacteriology (2)—First semester. Two lecture periods a week. Prerequisite, 8 credits in bacteriology.

History of bacterial classification; genetic relationships; international codes of nomenclature; bacterial variation as it affects classification. (Hansen.)

Bact. 181. Bacteriological Problems (3)—First and second semesters. Summer School. Prerequisites, 16 credits in bacteriology. Registration only upon the consent of the instructor.

This course is arranged to provide qualified majors in bacteriology and majors in allied fields an opportunity to pursue specific bacteriological problems under the supervision of a member of the department. Laboratory fee, \$10.00. (Staff.)

For Graduates

Bact. 201. Medical Mycology (4)—First semester. Two lecture and two two-hour laboratory periods a week. Prerequisite, 30 credits in bacteriology and allied fields.

Primarily a study of the fungi associated with disease and practice in the methods of isolation and identification. Laboratory fee, \$10.00. (Laffer.)

Bact. 202. Genetics of Microorganisms (2)—Second semester. Two lecture periods a week. Prerequisite, consent of instructor.

An introduction to genetic principles and methodology applicable to micro-organisms.
(Hansen.)

Bact. 204. Bacterial Metabolism (2)—First semester. Two lecture periods a week. Prerequisite, 30 credits in bacteriology and allied fields, including Chem. 161 and 162.

Bacterial enzymes, nutrition of autotrophic and heterotrophic bacteria, bacterial growth factors, dissimilation of carbohydrate and nitrogenous substrates.
(Pelczar.)

Bact. 206, 208. Special Topics (1, 1)—First and second semesters. One lecture period a week. Prerequisite, 20 credits in bacteriology.

Presentation and discussion of fundamental problems and special subjects in the field of bacteriology.
(Staff.)

Bact. 210. Virology (1)—Second semester. One lecture period a week. Prerequisite, Bact. 101 or equivalent.

Characteristics and general properties of viruses and rickettsiae.
(Warren.)

Bact. 211. Virology Laboratory (2)—Second semester. One lecture and one three-hour laboratory period a week. Prerequisite, Bact. 101 or equivalent. Registration only upon consent of instructor.

Laboratory methods in virology. Laboratory fee, \$20.00.
(Hilleman.)

Bact. 214. Advanced Bacterial Metabolism (1)—Second semester. One lecture period a week. Prerequisite, Bact. 204 and consent of instructor.

A discussion of recent advances in the field of bacterial metabolism with emphasis on metabolic pathways of microorganisms.
(Pelczar.)

Bact. 215. Tissue Culture (2)—First semester. Two three-hour laboratory periods a week. Prerequisite, consent of instructor.

A study of the principles of tissue culture. Laboratory fee, \$20.00.

Bact. 280. Seminar-Research Methods (1)—First semester.

Discussions and reports prepared by majors in bacteriology engaged in current research; presentations of selected subjects dealing with recent advances in microbiology.
(Staff.)

Bact. 282. Seminar-Bacteriological Literature (1)—Second semester. Presentation and discussion of current literature in microbiology.
(Staff.)

Bact. 291. Research—First and second semesters. Summer School.

Credits according to work done. The investigation is outlined in consultation with and pursued under the supervision of a senior staff member of the department. Laboratory fee, \$10.00.
(Staff.)

BOTANY

Students in the College of Arts and Sciences may select Botany as a major field, and may also take courses in this department for elective credit. For a description of courses, see the catalog of the College of Agriculture.

CHEMISTRY

Professors Drake, Pratt, Lippincott, Reeve, Rollinson, Svirbely, Veitch, White, Woods; Research Professors, Bailey, Michels, Shepard, Slawsky; Associate Professors, Brown, Jansen, Mason, Pickard, Schamp, Stuntz; Assistant Professors Aldridge, Carruthers, Dewey, Jaquith.

Laboratory fees in Chemistry are \$10.00 per laboratory course per semester.

A. Analytical Chemistry

Chem. 15. Qualitative Analysis (4)—First semester. Two lectures and two three-hour laboratory periods per week. Prerequisite, Chem. 3.

Chem. 19. Elements of Quantitative Analysis (4)—First and second semesters. Summer School. Two lectures and two three-hour laboratory periods per week. Prerequisite, Chem. 3.

An introduction to the basic theory and techniques of volumetric and gravimetric analysis. Primarily for students in engineering, agriculture, pre-medical, and pre-dental curricula.

Chem. 21. Quantitative Analysis (4)—Second semester. Two lectures and two three-hour laboratory periods per week. Prerequisite, Chem. 15.

An intensive study of the theory and techniques of inorganic quantitative analysis, covering primarily volumetric methods. Required of all students majoring in chemistry.

Chem. 123. Quantitative Analysis (4)—First semester. Two lectures and two three-hour laboratory periods per week. Prerequisite, Chem. 21.

A continuation of Chem. 21, including volumetric, gravimetric, electrometric, and colorimetric methods. Required of all students majoring in chemistry.

Chem. 166, 167. Food Analysis (3, 3)—First and second semesters. One lecture and two three-hour laboratory periods per week. Prerequisites, Chem. 33, 34.

Chem. 206, 208. Spectrographic Analysis (1, 1)—One three-hour laboratory period per week. Registration limited. Prerequisite, Chem. 190, and consent of the instructor. (White.)

Chem. 221, 223. Chemical Microscopy (2, 2)—First and second semesters. One lecture and one three-hour laboratory period per week. Registration limited. Prerequisite, consent of instructor. Chem. 221 is a prerequisite for Chem. 223.

A study of the use of the microscope in chemistry. Chem. 223 is devoted to study of the optical properties of crystals. (Stuntz.)

Chem. 226, 228. Advanced Quantitative Analysis (2, 2)—First and second semesters. Two three-hour laboratory periods per week. Prerequisite, consent of instructor.

A study of advanced methods chosen to meet the needs of the individual. (Stuntz.)

Chem. 266. Biological Analysis (2)—Second semester. Two three-hour laboratory periods per week. Prerequisites, Chem. 19, 33, 34.

A study of analytical methods applied to biological material.

B. Biochemistry

Chem. 41. Chemistry of Textiles (4)—Second semester. Two lectures and two three-hour laboratory periods per week. Prerequisites, Chem. 33, 34.

A study of the chemistry of the principal textile fibers.

Chem. 81. General Biochemistry (2)—First semester. Two lectures per week. Prerequisites, Chem. 33, 34, or Chem. 37, 38.

This course is designed primarily for students in home economics. Chem. 82 **MUST** be taken concurrently.

Chem. 82. General Biochemistry Laboratory (2)—First semester. Two three-hour laboratory periods per week. Prerequisite, Chem. 34, or Chem. 38.

A course designed to accompany Chem. 81.

Chem. 161, 163. Biochemistry (2, 2)—First and second semesters. Two lectures per week. Prerequisite, Chem. 33, or Chem. 37.

This course is designed primarily for students in agriculture, bacteriology, or chemistry, and for those students in home economics who need a more extensive course of biochemistry than Chem. 81, 82.

Chem. 162, 164. Biochemistry Laboratory (2, 2)—First and second semesters. Two three-hour laboratory periods per week. Prerequisite, Chem. 34, or Chem. 38.

Chem. 261, 263. Advanced Biochemistry (2, 2)—First and second semesters. Two lectures per week. Prerequisite, Chem. 143, or consent of the instructor. (Veitch.)

Chem. 262, 264. Advanced Biochemistry Laboratory (2, 2)—First and second semesters. Two three-hour laboratory periods per week. Prerequisite, consent of the instructor. (Veitch.)

Chem. 265. Enzymes (2)—First semester. Two lectures per week. Prerequisite, Chem. 163. (Veitch.)

Chem. 268. Special Problems in Biochemistry (2-4)—First and second semesters. Two to four three-hour laboratory periods per week. Prerequisites, Chem. 161, 162, and consent of the instructor. (Veitch.)

C. Inorganic and General Chemistry

Chem. 1, 3. General Chemistry (4, 4)—First and second semesters. Chem. 3, Summer School. Two lectures, one quiz, and two two-hour laboratory periods per week.

Chem. 11, 13. General Chemistry (3, 3)—Two lectures and one three-hour laboratory period per week.

An abbreviated course in general chemistry for students in home economics and pre-nursing. This course is open only to students registered in home economics and pre-nursing.

Chem. 101. Advanced Inorganic Chemistry (2)—Second semester. Two lectures per week. Prerequisites, Chem. 123, 37.

(One or more courses of the group 201-239 will be offered each semester depending on demand.)

Chem. 111. Chemical Principles (4)—Two lectures and two three-hour laboratory periods a week. Prerequisite, Chem. 1 and 3, or equivalent. Not open to students seeking a major in the physical sciences, since the course content is covered elsewhere in their curriculum. (Jaquith.)

A course in the principles of chemistry with accompanying laboratory work consisting of simple quantitative experiments. (Credit applicable only toward degree in College of Education.)

Chem. 201, 203. The Chemistry of the Rarer Elements (2, 2)—First and second semesters. Two lectures per week. (White.)

Chem. 202, 204. Advanced Inorganic Laboratory (2, 2)—First and second semesters. Two three-hour laboratory periods per week.

Chem. 205. Radiochemistry (2)—Two lectures per week. (Rollinson.)

Chem. 207. Chemistry of Coordination Compounds (2)—Two lectures per week. (Rollinson.)

Chem. 209. Non-Aqueous Inorganic Solvents (2)—First or second semester. Two lectures per week. (Jaquith.)

Chem. 210. Radiochemistry Laboratory (1-2)—One or two four-hour laboratory periods per week.* Registration limited. Prerequisites, Chem. 205 (or concurrent registration therein), and consent of instructor. (Rollinson.)

D. Organic Chemistry

Chem. 31, 33. Elements of Organic Chemistry (2, 2)—First and second semesters. Two lectures per week. Prerequisites, Chem. 1, 3.

Organic chemistry for students in agriculture, bacteriology, and home economics.

Chem. 32, 34. Elements of Organic Laboratory (1, 1)—First and second semesters. One three-hour laboratory period per week. Prerequisites, Chem. 31, 33, or concurrent registration therein.

Chem. 35, 37. Elementary Organic Chemistry (2, 2)—First and second semesters. Chem. 37, Summer School. Two lectures per week. Prerequisites, Chem. 1, 3.

A course for chemists, chemical engineers, premedical students, and pre dental students.

Chem. 36, 38. Elementary Organic Laboratory (2, 2)—First and second semesters. Chem. 38, Summer School. Two three-hour laboratory periods per week. Prerequisites, Chem. 35, 37, or concurrent registration therein.

Chem. 141, 143. Advanced Organic Chemistry (2, 2)—First and second semesters. Two lectures per week. Prerequisites, Chem. 37, 38.

An advanced study of the compounds of carbon.

Chem. 144. Advanced Organic Laboratory (2-4)—Second semester. Summer School. Two or four three-hour laboratory periods per week. Prerequisites, Chem. 37, 38.

Chem. 146, 148. The Identification of Organic Compounds (2, 2)—First and second semesters. Summer School. Two three-hour laboratory periods

per week. Prerequisites, Chem. 141, 143, or concurrent registration therein.
The systematic identification of organic compounds.

Chem. 150. Organic Quantitative Analysis (2)—First and second semesters. Two three-hour laboratory periods per week. Prerequisite, consent of the instructor. (Aldridge.)

The semi-micro determination of carbon, hydrogen, nitrogen, halogen and certain functional groups.

This course may be substituted for Chem. 144 in the chemistry major curriculum.

(One or more courses from the following group, 240-253, will customarily be offered each semester.)

Chem. 240. Organic Chemistry of High Polymers (2)—First semester.

An advanced course covering the synthesis of monomers, mechanisms of polymerization, and the correlation between structure and properties in high polymers. Prerequisites, Chem. 141 and 143.

Chem. 241. Stereochemistry (2)—Two lectures per week. (Woods.)

Chem. 245. The Chemistry of the Steroids (2)—Two lectures per week. (Pratt.)

Chem. 249. Physical Aspects of Organic Chemistry (2)—Two lectures per week. (Woods.)

Chem. 251. The Heterocyclics (2)—Two lectures per week. (Pratt.)

Chem. 253. Organic Sulfur Compounds (2)—Two lectures per week. (Dewey.)

Chem. 254. Advanced Organic Preparation (2 to 4)—First and second semesters. Summer School. Two or four three-hour laboratory periods per week. (Pratt.)

Chem. 258. The Identification of Organic Compounds, an Advanced Course (2 to 4)—First and second semesters. Summer School. Two to four three-hour laboratory periods per week. Prerequisites, Chem. 141, 143 or concurrent registration therein. (Pratt.)

E. Physical Chemistry

Chem. 181, 183. Elements of Physical Chemistry (2, 2)—First and second semesters. Two lectures per week. Prerequisites, Chem. 1, 3; Phys. 10, 11; Math. 10, 11; Chem. 19.

A course intended primarily for premedical students and students in the biological sciences. This course must be accompanied by Chem. 182, 184.

Chem. 182, 184. Elements of Physical Chemistry Laboratory (1, 1)—First and second semesters. One three-hour laboratory period per week. May be taken ONLY when accompanied by Chem. 181, 183.

The course includes quantitative experiments illustrating the principles studied in Chem. 181, 183.

Chem. 187, 189. Physical Chemistry (3, 3)—First and second semesters. Three lectures per week. Prerequisites, Chem. 19 or 21; Phys. 20, 21; Math. 20, 21; or consent of instructor.

A course primarily for chemists and chemical engineers. This course must be accompanied by Chem. 188, 190.

Chem. 188, 190. Physical Chemistry Laboratory (2, 2)—First and second semesters. Two three-hour laboratory periods per week.

A laboratory course for students taking Chem. 187, 189.

Chem. 192, 194. Glassblowing Laboratory (1, 1)—First and second semesters. Summer School. One three-hour laboratory period per week. Prerequisite, consent of instructor. (Carruthers)

The common prerequisites for the following courses are Chem. 187 and 189, or their equivalent. One or more courses of the group, 281 through 323, will be offered each semester depending on demand.

Chem. 281. Theory of Solutions (2)—First or second semester. Two lectures per week. Prerequisite, Chem. 307, or equivalent. (Svirbely.)

Chem. 285. Colloid Chemistry (2)—Two lectures per week. (Pickard.)

Chem. 287. Infra-red and Raman Spectroscopy (2)—Two lectures per week. Prerequisite, consent of instructor. (Lippincott.)

Chem. 289. Selected Topics in Advanced Colloid Chemistry (2)—Two lectures per week. Prerequisite, Chem. 285.

Chem. 295. Heterogenous Equilibria (2)—Two lectures per week. (Pickard.)

Chem. 299. Reaction Kinetics (3)—Three lectures per week. (Svirbely.)

Chem. 303. Electrochemistry (3)—Three lectures per week. (Pickard.)

Chem. 304. Electrochemistry Laboratory (2)—Two three-hour laboratory periods per week. Prerequisite, consent of instructor. (Svirbely.)

Chem. 307. Chemical Thermodynamics (3)—Three lectures per week. (Pickard.)

Chem. 311. Physicochemical Calculations (2)—Offered in summer session only. (Pickard.)

Chem. 313. Molecular Structure (3)—Three lectures per week. (Brown.)

Chem. 317. Chemical Crystallography (3)—Three lectures per week. Prerequisite, consent of Instructor.

A detailed treatment of single crystal X-ray methods. (Brown.)

Chem. 321. Quantum Chemistry (3)—Three lectures per week. Prerequisite, Chem. 307, or equivalent. (Lippincott.)

Chem. 323. Statistical Mechanics and Chemistry (3)—Three lectures per week. Prerequisite, Chem. 307, or equivalent. (Brown.)

F. Seminar and Research

Chem. 351. Seminar (1)—First and second semesters. (Staff.)

Chem. 360. Research—First and second semesters, summer session.
(Staff.)

CLASSICAL LANGUAGES AND LITERATURES

Professor Avery

The following schedule will apply in general in determining the course level at which students will register for Latin and Greek. All students whose stage of achievement is not represented below are urgently invited to confer with the head of the department.

Students offering 0 or 1 unit of Latin will register for course 1.

Students offering 2 units of Latin will register for course 3.

Students offering 3 units of Latin will register for course 4.

Students offering 4 units of Latin will register for course 5.

No credit will be given for less than two semesters of Elementary Latin or Greek except as provided below in the course description of Latin 1, 2.

Latin

Latin 1, 2. Elementary Latin (3, 3)—First and second semesters. Latin 2, Summer School.

The essentials of Latin grammar, exercises in translation, composition, and connected reading. A student who has had two units of Latin in high school may register for Latin 1 for purposes of review, but not for credit; however, he may, under certain conditions, register for Latin 2 for credit with departmental permission. (Avery.)

Latin 3. Intermediate Latin (3)—First and second semesters. Prerequisite, Latin 1 and 2 or equivalent.

Grammar review, Latin readings, and exercises in composition, followed by the reading of selections from Caesar's Commentaries on the Gallic War. (Avery.)

Latin 4. Intermediate Latin (3)—First and second semesters. Prerequisite, Latin 3 or equivalent.

Selected orations of Cicero. (Avery.)

Latin 5. Vergil's Aeneid (3)—First and second semesters. Prerequisite, Latin 4 or equivalent.

Selections from Vergil's Aeneid. (Avery.)

Latin 51. Horace (3)—Second semester. Prerequisite, Latin 5 or equivalent.

Selected Odes and Epodes of Horace. (Avery.)

Latin 52. Livy (3)—First semester. Prerequisite, Latin 51 or equivalent.

Selections from Livy's history. (Avery.)

Latin 61. Pliny's Letters (3)—Second semester. Prerequisite, Latin 52 or equivalent.

Selected letters of Pliny the Younger. (Avery.)

Latin 70. Greek and Roman Mythology (3)—First and second semesters, Summer School. Taught in English, no prerequisite.

A systematic study of the divinities of ancient Greece and Rome and the classical myths concerning them. (Avery.)

NOTE:—This course is particularly recommended for students planning to major in Foreign Languages, English, History, the Fine Arts, and Journalism.

For Advanced Undergraduates and Graduates

Latin 101. Catullus and the Roman Elegiac Poets (3).

Lectures and readings on Catullus as a writer of lyric, an imitator of the Alexandrians, and as a writer of elegy, and on Tibullus, Propertius, and Ovid as elegists. The reading of selected poems of the four authors. Reports. (Avery.)

Latin 102. Tacitus (3).

Lectures and readings on Greek and Roman historiography before Tacitus and on the author as a writer of history. The reading of selections from the *Annals* and *Histories*. Reports. (Avery.)

Latin 103. Roman Satire (3).

Lectures and readings on the origins and development of Roman satire. The reading of selections from the satires of Horace, Petronius' *Cena Trimalchionis*, and the satires of Juvenal. Reports. (Avery.)

Latin 104. Roman Comedy (3).

Lectures and readings on the origins and development of Roman comedy. The reading of selected plays of Plautus and Terence. Reports. (Avery.)

Latin 105. Lucretius (3).

Lectures and readings on Greek and Roman Epicureanism. The reading of selections from the *De rerum natura*. Reports. (Avery.)

For Graduates

Latin 210. Vulgar Latin Readings (3)—First and second semesters, Summer School.

An intensive review of the phonology, morphology, and syntax of Classical Latin, followed by the study of the deviations of Vulgar Latin from the classical norms, with the reading of illustrative texts. The reading of selections from the *Peregrinatio ad loca sancta* and the study of divergences from classical usage therein, with special emphasis on those which anticipate subsequent developments in the Romance Languages. Reports. (Avery.)

Greek

Greek 1, 2. Elementary Greek (3, 3)—First and second semesters.

The essentials of Greek grammar, exercises in translation, composition, and connected reading. (Avery.)

Greek 3. Intermediate Greek (3)—First semester. Prerequisite, Greek 1 and 2 or equivalent.

Grammar review, Greek readings, and exercises in composition, followed by the reading of selections from the *Anabasis* of Xenophon. (Avery.)

Greek 4. Intermediate Greek (3)—Second semester. Prerequisite, Greek 3 or equivalent.

Selections from the *Odyssey* of Homer. See Greek 6. (Avery.)

Greek 5. Herodotus (3)—First semester. Prerequisite, Greek 4 or equivalent. Selections from Herodotus' history of the Persian Wars. (Avery.)

Greek 6. The New Testament (3)—Second semester. Prerequisite, Greek 3 or equivalent. Greek 6 will be substituted for Greek 4 upon demand of a sufficient number of students.

The study of New Testament Greek and its deviations from Classical Greek. The reading of selections from the four Gospels. (Avery.)

Greek 51. Euripides (3)—Second semester. Prerequisite, Greek 5 or equivalent.

Selected plays of Euripides. (Avery.)

Greek 52. Plato (3)—First semester. Prerequisite, Greek 51 or equivalent. Selected dialogues of Plato. (Avery.)

COMPARATIVE LITERATURE

Professors Aldridge, Falls, Goodwyn, Harman, Murphy, Prah, Zeeveld, Zucker; Lecturer McManaway; Associate Professors Cooley, Manning, Mooney, Weber; Assistant Professors Andrews, Gravely, Parsons.

Requirements for major include Comparative Literature 101, 102. Comparative Literature courses may be counted toward a major or minor in English when recommended by the student's major adviser.

Comp. Lit. 1. Greek Poetry (2)—First semester.

Homer's Iliad and *Odyssey*, with special emphasis on the literary form and the historical and mythological background.

Comp. Lit. 2. Later European Epic Poetry (2)—Second semester

Virgil's *Aeneid*, Dante's *Divine Comedy*, *Nibelungenlied* and other European epics, with special emphasis on their relationship to and comparison with the Greek epic.

For Advanced Undergraduates and Graduates

Comp. Lit. 101, 102. Introductory Survey of Comparative Literature (3, 3)—First semester: Survey of the background of European literature through study of Greek and Latin literature in English translations, discussing the debt of modern literature to the ancients. Second semester: Study of medieval and modern Continental literature. (Zucker.)

Comp. Lit. 103. The Old Testament as Literature (3)—Second semester.

A study of the sources, development and literary types. (Zucker.)

Comp. Lit. 105. Romanticism in France (3)—First semester.

Lectures and readings in the French romantic writers from Rousseau to Baudelaire. Texts are read in English translations. (Parsons.)

Comp. Lit. 106. Romanticism in Germany (3)—Second semester.

Continuation of Comp. Lit. 105. German literature from Buerger to Helne in English translations. (Prah.)

Comp. Lit. 107. The Faust Legend in English and German Literature (3)—
First semester.

A study of the Faust legend of the Middle Ages and its later treatment by Marlowe in *Dr. Faustus* and by Goethe in *Faust*. (Prahl.)

Comp. Lit. 112. Ibsen (3)—First semester.

A study of the life and chief works of Henrik Ibsen with special emphasis on his influence on the modern drama. (Zucker.)

Comp. Lit. 114. The Greek Drama (3)—First semester.

The chief works of Aeschylus, Sophocles, Euripides, and Aristophanes in English translations. Emphasis on the historic background, on dramatic structure, and on the effect of the Attic drama upon the mind of the civilized world. (Prahl.)

Comp. Lit. 125. Literature of the Middle Ages (3)—Narrative, dramatic, and lyric literature of the Middle Ages; studies in translations. (Cooley.)

In addition, the following courses will count as credit in Comparative Literature:

English Language and Literature—Eng. 104; Eng. 113; Eng. 121; Eng. 129, 130; Eng. 144; Eng. 146; Eng. 155, 156; Eng. 157.

Foreign Languages and Literatures—Span. 109.

Speech and Dramatic Art.—Speech 131, 132.

For Graduates

Comp. Lit. 258. Folklore in Literature (3)—

A study of folk heroes, motifs, and ideas as they appear in the world's masterpieces. (Goodwyn.)

The following courses will count as credit in Comparative Literature:

English Language and Literature—Eng. 201; Eng. 204; Eng. 206, 207; Eng. 216, 217; Eng. 227, 228.

Foreign Languages and Literatures—Ger. 204; Ger. 208.

ECONOMICS

Students in the College of Arts and Sciences may select Economics as a major field, and may also take courses in this department for elective credit. For a description of courses, see the catalog of the College of Business and Public Administration.

ENGLISH LANGUAGE AND LITERATURE

Professors Murphy, Aldridge, Bode, Harman, McManaway (P.T.), Zeeveld; Associate Professors Ball, Cooley, Manning, Mooney, Ward, Weber; Assistant Professors Andrews, Coulter, Fleming, Gravely, Lutwack, Mish, Schaumann; Instructors Adams, Barnes, Beall, Birdsall, Casey, Coulling, Cowen, Demaree, Grimes, Harris, Herzbrun, Hoadley, Hodgins, Holberg, Kelly, Martin, Miller, Orel, Portz, Robinson, Saveson, Smith, Stone, Thorberg, Walker, Walt, Weaver. Graduate Assistant, Nelson.

Eng. 1, 2. Composition and American Literature (3, 3)—First and second semesters. Summer School. Required of freshmen. Eng. 1 is the prerequisite of Eng. 2.

Grammar, rhetoric, and the mechanics of writing; frequent themes. Readings are in American literature. (Gravely and Staff.)

Eng. 3, 4. Composition and World Literature (3, 3)—First and second semesters. Summer School. Prerequisite, Eng. 1, 2. Eng. 3, 4, or Eng. 5, 6, or an acceptable combination of the two, are required of sophomores. Credit will not be given for more than six hours of work in 3, 4 and 5, 6.

Practice in composition. An introduction to world literature, foreign classics being read in translation. (Cooley and Staff.)

Eng. 5, 6. Composition and English Literature (3, 3)—First and second semesters. Prerequisite, Eng. 1, 2. Eng. 3, 4, or Eng. 5, 6, or an acceptable combination of the two, are required of sophomores. Credit will not be given for more than six hours of work in 3, 4 and 5, 6.

Practice in composition. An introduction to major English writers. (Cooley and Staff.)

Eng. 7. Technical Writing (2)—First and second semesters. Prerequisite, Eng. 1, 2.

For students desiring practice in writing reports, technical essays, or popular essays on technical subjects. (Coulter.)

Eng. 8. College Grammar (3)—First and second semesters. Summer School (2). Prerequisite, Eng. 1, 2.

An analytical study of Modern English grammar. (Harman.)

Eng. 9. Introduction to Narrative Literature (3)—Second semester. Summer School (2). Prerequisite, Eng. 1, 2.

An intensive study of representative stories, with lectures on the history and technique of the short story and other narrative forms. (Harman.)

Eng. 12. Introduction to Creative Writing (2)—Second semester. Prerequisite, Eng. 1, 2. (Fleming.)

Eng. 14. Expository Writing (3)—Not offered on College Park campus. Prerequisite, Eng. 1, 2. Credit will not be given for Eng. 7 in addition to Eng. 14.

Methods and problems of exposition; practice in several kinds of informative writing including the preparation of technical papers and reports.

Eng. 15. Readings in Biography (3)—First semester. Summer School (2). Prerequisite, Eng. 1, 2.

An analytical study in the form and technique of biographical writing in Europe and America. (Ward.)

For Graduates and Advanced Undergraduates

Eng. 101. History of the English Language (3)—Second semester. Summer School (2). (Harman.)

Eng. 102. Old English (3)—First semester. Summer School (2). (Ball.)

Eng. 103. Beowulf (3)—Second semester. (Ball.)

Eng. 104. Chaucer (3)—First semester. Summer School (2).

A literary and language study of the *Canterbury Tales*, *Troilus and Criseyde*, and the principal minor poems. (Harman.)

Eng. 110, 111. Elizabethan and Jacobean Drama (3, 3)—First and second semesters.

The most important dramatists of the time, other than Shakespeare. (Zeeveld.)

Eng. 112. Poetry of the Renaissance (3)—Not offered in 1956-57.

(Zeeveld.)

Eng. 113. Prose of the Renaissance (3)—Not offered in 1956-57.

(Zeeveld, Mish.)

Eng. 115, 116. Shakespeare (3, 3)—First and second semesters. Summer School (2, 2).

Twenty-one important plays. (Zeeveld.)

Eng. 120. English Drama from 1660 to 1800 (3)—Second semester.

The important dramatists from Wycherley to Sheridan, with emphasis upon the comedy of manners. (Ward.)

Eng. 121. Milton (3)—Second semester. Summer School (2). (Murphy.)**Eng. 122. Literature of the Seventeenth Century, 1600-1660 (3)—First semester.**

The major non-dramatic writers (exclusive of Milton.) (Murphy.)

Eng. 123. Literature of the Seventeenth Century, 1660-1700 (3)—Second semester.

The Age of Dryden, with the exception of the drama. (Aldridge.)

Eng. 125, 126. Literature of the Eighteenth Century (3, 3)—Eng. 125, Summer School (2). Not offered 1956-57. (Aldridge.)**Eng. 129, 130. Literature of the Romantic Period (3, 3)—Summer School (2, 2). Not offered 1956-57. (Weber.)****Eng. 134, 135. Literature of the Victorian Period (3, 3)—First and second semesters. Summer School (2, 2). (Cooley, Mooney.)****Eng. 139, 140. The English Novel (3, 3)—First and second semesters. Eng. 140, Summer School (2). (Ward, Mooney.)****Eng. 143. Modern Poetry (3)—First semester. Summer School (2).**

The chief British and American poets of the twentieth century. (Murphy.)

Eng. 144. Modern Drama (3)—First semester.

The drama from Ibsen to the present. (Weber.)

Eng. 145. The Modern Novel (3)—Second semester. Summer School (2).

Major English and American novelists of the twentieth century. (Andrews.)

Eng. 148. The Literature of American Democracy (3)—Not offered in 1956-57.

Eng. 150, 151. American Literature (3, 3)—First and second semesters. Summer School (2, 2).

Representative American poetry and prose from colonial times to the present with special emphasis on the literature of the nineteenth century. (Gravely, Manning.)

Eng. 155, 156. Major American Writers (3, 3)—First and second semesters. Summer School (2, 2).

Two writers studied intensively each semester. (Gravely, Manning.)

Eng. 157. Introduction to Folklore (3)—First semester. Summer School (2).

Historical background of folklore studies; types of folklore with particular emphasis on folktales and folksongs, and on American folklore. (Cooley.)

Eng. 170. Creative Writing (2)—First semester. Prerequisite, permission of the instructor. (Fleming.)

Eng. 171. Advanced Creative Writing (2)—Second semester. Prerequisite, permission of the instructor. (Fleming.)

Eng. 172. Playwriting (2)—Not offered in 1956-57. Prerequisite, permission of the instructor. (Fleming.)

For Graduates

Eng. 200—Research (1-6)—Arranged. Credit in proportion to work done and results accomplished. (Staff.)

Eng. 201. Bibliography and Methods (3)—First semester.

An introduction to the principles and methods of research. (Mooney.)

Eng. 202. Middle English (3)—First semester. Summer School (2).

(Harman.)

Eng. 203. Gothic (3)—Second semester.

(Harman.)

Eng. 204. Medieval Romances (3)—Second semester.

(Cooley.)

Eng. 206, 207. Seminar in Renaissance Literature (3, 3)—First and second semesters. Eng. 206, Summer School (2). (McManaway, Zeeveld.)

Eng. 210. Seminar in Seventeenth-Century Literature (3)—Summer School (2). Not offered in 1956-57. (Murphy, Zeeveld.)

Eng. 212, 213. Seminar in Eighteenth-Century Literature (3, 3)—First and second semesters. (Aldridge.)

Eng. 214, 215. Seminar in Nineteenth-Century Literature (3)—First and second semesters. Eng. 214, Summer School (2). (Cooley, Mooney, Weber.)

Eng. 216, 217. Literary Criticism (3, 3)—Not offered in 1956-57. (Murphy.)

Eng. 225, 226. Seminar in American Literature (3, 3)—First and second semesters. Summer School (2, 2). (Bode.)

Eng. 227, 228. Problems in American Literature (3, 3)—Eng. 227, Summer School (2). Not offered in 1956-57. (Aldridge.)

FOREIGN LANGUAGES AND LITERATURES

Professors Zucker, Falls, Prah, Cunz, L. P. Smith, Goodwyn; Lecturer, H. H. Arnold; Associate Professors Kramer, Quynn, Bingham; Assistant Professors Parsons, Schweizer, Rand, Rosenfield, Hammerschlag, Dobert, Bridgers; Instructors Nemes, Norton, Boborykine, Chen, Ouroussoff, Hall, Bulatkin, Arsenault, Rovner, Schulz; Part-time Instructors Greenberg, Clemens, Trace, Davis, Forbes.

At the beginning of each semester a placement examination is given for all students who have had some foreign language in high school and wish to do further work in that language. By this means the Department assigns each student to the suitable level of instruction. Any student who fails to qualify for the second semester of his language will be required to register for the first without credit or register for a different language.

No credit will be given for the elementary first semester (1) alone unless followed by further study.

A student whose native language is taught at the University may not meet the language requirement by taking Freshman or Sophomore courses in his language.

Foreign students may substitute for the 12-hour foreign language requirement 12 additional hours of English. They are advised to take **Foreign Language 1, 2, English for Foreign Students**, for their first year and **English 10, Practice in Composition**, plus a 3-hour course in literature during their second year. These courses should be taken concurrently with Freshman and Sophomore English.

Honors in French, German or Spanish: A student whose major is in French, German or Spanish and who maintains an approved average in his grades may read for honors in French, German or Spanish. A candidate for honors is examined upon an approved individual program of readings in an area of his special interest. Application may be made to the head of the Department of Foreign Languages between the second semester of the sophomore year and the first semester of the senior year.

Attention is called to the courses in **Comparative Literature** elsewhere in these pages.

Foreign Language 1, 2. English for Foreign Students (3, 3)—First and second semesters.

An introduction to English usage, adapted to the needs of the non-English-speaking student. Pronunciation, spelling, syntax; the differences between English and various other languages are stressed. (Bridgers.)

French

French 0. Intensive Elementary French (0). Summer School only.

Intensive elementary course in the French language designed particularly for graduate students who wish to acquire a reading knowledge. (Staff.)

French 1, 2. Elementary French (3, 3)—First and second semesters. French 2, Summer School. Three recitations and one laboratory period per week.

Elements of grammar and exercises in translation. One hour drill in pronunciation and conversation. A student who has had two units of French in high school may take French 1 for purposes of review, but not for credit. (Falls and Staff.)

French 3. Elementary Conversation (1)—First and second semesters. Open to all students who have completed their first year French or French 1 with the grade A or B.

French 4, 5. Intermediate Literary French (3, 3)—First and second semesters. Summer School. Prerequisite, French 1 and 2 or equivalent. Students who have taken French 6 and 7 cannot receive credit for French 4 and 5.

Reading of texts designed to give some knowledge of French life, thought and culture.

French 6, 7. Intermediate Scientific French (3, 3)—First and second semesters. Prerequisite, French 1 and 2 or equivalent. Students who have taken French 4 and 5 cannot receive credit for French 6 and 7.

Reading of technical and scientific prose, with some grammar review.

French 8, 9. Intermediate Conversation (2, 2)—First and second semesters. Prerequisite; for French 8. French 3 or consent of instructor; for French 9; French 8 or consent of instructor.

French 17. Grammar Review (3)—First and second semesters. May be taken after completion of French 4 or 5. Recommended for students who expect to major or minor in French.

For Advanced Undergraduates

French 51, 52. The Development of the French Novel (3, 3)—First and second semesters.

Introductory study of the history and growth of the novel in French literature. French 51 covers the seventeenth and eighteenth centuries, French 52 the nineteenth.

French 53, 54. The Development of the French Drama (3, 3)—First and second semesters.

Introductory study of the French drama. French 53 covers the seventeenth and eighteenth centuries, French 54 the nineteenth.

French 55, 56. The Development of the Short Story in French (3, 3)—First and second semesters.

A study of the short story in French literature. French 55 covers examples up to the nineteenth century, French 56 the nineteenth and twentieth centuries.

French 61, 62. French Phonetics (1, 1)—First and second semesters. Prerequisite French 1, 2, or equivalent.

Elements of French phonetics, diction and intonation.

French 71, 72.—Review Grammar and Composition (3, 3)—First and second semesters. Prerequisite, French 17 or equivalent.

For students who, having a good knowledge of French, wish to become more proficient in the written and spoken language.

French 75, 76. Introduction to French Literature (3, 3)—First and second semesters. Prerequisite, second-year French or equivalent.

An elementary survey of the chief authors and movements in French literature.

French 80, 81. Advanced Conversation (3, 3)—First and second semesters.
For students who wish to develop fluency and confidence in speaking the language.

For Advanced Undergraduates and Graduates

French 100. French Literature of the Sixteenth Century (3)—First semester.

The Renaissance in France; humanism; Rabelais and Calvin; the *Pleïade*; Montaigne.
(Falls.)

French 101, 102. French Literature of the Seventeenth Century (3, 3)—First and second semesters.

First semester: Descartes, Pascal, Corneille, Racine. Second semester: the remaining great classical writers, with special attention to Molière.
(Quynn, Rosenfield.)

French 103, 104. French Literature of the Eighteenth Century (3, 3)—First and second semesters.

First semester: development of the philosophical and scientific movement; Montesquieu. Second semester: Voltaire, Diderot, Rousseau.
(Falls, Bingham.)

French 105, 106. French Literature of the Nineteenth Century (3, 3)—First and second semesters.

First semester: drama and poetry from Romanticism to Symbolism. Second semester: the major prose writers of the same period.
(Bingham, Quynn.)

French 107, 108. French Literature of the Twentieth Century (3, 3)—First and second semesters.

First semester: drama and poetry from Symbolism to the present time. Second semester: the contemporary novel.
(Falls.)

French 121, 122. Advanced Composition (3, 3)—First and second semesters.

Translation from English into French, free composition, letter writing.
(Falls.)

French 161, 162. French Civilization (3, 3)—First and second semesters.

French life, customs, culture, traditions. First semester: the historical development. Second semester: present-day France.
(Rosenfield.)

French 171. Practical French Phonetics (3)—First semester.

Pronunciation of modern French. The sounds and their production, the stress group, intonation.
(Smith.)

French 199. Rapid Review of the History of French Literature (1)—Second semester. Especially designed for French majors.

Weekly lectures stressing the high point in the history of French literature.
(Falls.)

For Graduates

The requirements of students will determine which courses will be offered.

French 201. Research—Credits determined by work accomplished.

Guidance in the preparation of master's and doctoral theses. Conferences.
(Staff.)

French 203, 204. Georges Duhamel: Poet, Dramatist, Novelist (2, 2)—First and second semesters.
(Falls.)

French 205, 206. French Literature of the Middle Ages (3, 3)—First and second semesters.
(Smith.)

French 207, 208. The French Novel in the First Half of the Nineteenth Century (2, 2)—First and second semesters.
(Falls.)

French 209, 210. The French Novel in the Second Half of the Nineteenth Century (2, 2)—First and second semesters. (Falls.)

French 211. Introduction to Old French (3). (Smith.)

French 215, 216. Molière (3, 3)—First and second semesters. (Quynn.)

French 221, 222. Reading Course—(Arranged).

Designed to give the graduate student a background of a survey of French literature. Extensive outside readings, with reports and periodic conferences. (Staff.)

French 230. Introduction to European Linguistics (3). (Smith.)

French 251, 252. Seminar (3, 3)—Required of all graduate majors in French. (Staff.)

German

German 0. Intensive Elementary German (0). Summer School only.

Intensive elementary course in the German language designed particularly for graduate students who wish to acquire a reading knowledge. (Staff.)

German 1, 2. Elementary German (3, 3)—First and second semesters. German 2, Summer School. Three recitations and one laboratory period per week.

Elements of grammar and exercises in translation. One hour drill in pronunciation and conversation. A student who has had two units of German in high school may take German 1 for purposes of review, but not for credit. (Cunz and Staff.)

German 3. Elementary Conversation (1)—First and second semesters. Open to all students who have completed their first year German or German 1 with grade A or B.

German 4, 5. Intermediate Literary German (3, 3)—First and second semesters. Summer School. Prerequisite, German 1, 2, or equivalent. Students who have taken German 6 and 7 cannot receive credit for German 4 and 5.

Reading of narrative prose designed to give some knowledge of German life, thought and culture.

German 6, 7. Intermediate Scientific German (3, 3)—First and second semesters. Prerequisite, German 1, 2, or equivalent. Students who have taken German 4 and 5 cannot receive credit for German 6 and 7.

Reading of technical and scientific prose, with some grammar review.

German 8, 9. Intermediate Conversation (2, 2)—First and second semesters. Prerequisite for German 8: German 3 or consent of instructor; for German 9: German 8 or consent of instructor.

German 17. Grammar Review (3)—First and second semesters. May be taken after completion of German 4 or 5. Recommended to students who wish to major or minor in German.

For Advanced Undergraduates

German 61, 62. German Phonetics (1, 1)—First and second semesters. Prerequisite German 1, 2, or equivalent.

Pronunciation of German, study of phonetics, oral exercises and ear training.

German 71, 72. Review Grammar and Composition (3, 3)—First and second semesters. Prerequisite, German 4, 5, or equivalent. This course is required of students preparing to teach German.

A thorough study of the more detailed points of German grammar with ample practice in composition work.

German 75, 76. Introduction to German Literature (3, 3)—First and second semesters. Prerequisite, German 4, 5, or equivalent.

An elementary survey of the most outstanding authors and movements in German literature.

German 80, 81. Advanced Conversation (3, 3)—First and second semesters. Prerequisite, German 8, 9 or consent of instructor.

For students who wish to develop fluency and confidence in speaking the language. Reading of German newspapers.

For Advanced Undergraduates and Graduates

German 101, 102. German Literature of the Eighteenth Century (3, 3)—First and second semesters.

The main works of Klopstock, Wieland, Lessing, Herder, Goethe, Schiller.
(Prahl, Schweizer.)

German 103, 104. German Literature of the Nineteenth Century (3, 3)—First and second semesters.

Outstanding works of Kleist, Grillparzer, Grabbe, Hebbel, Ludwig, Stifter, Keller, Anzengruber.
(Prahl, Cunz.)

German 105, 106. Modern German Literature (3, 3)—First and second semesters.

Prose and dramatic writings from Gerhart Hauptmann to the present time (1890-1950.)
(Prahl, Hammerschlag.)

German 107, 108. Goethe's Faust (2, 2)—First and second semesters.

First and second parts of the drama.
(Zucker.)

German 121, 122. Advanced Composition (3, 3)—First and second semesters.

Translations from English into German, free composition, letter writing.
(Kramer, Cunz.)

German 161, 162. German Civilization (3, 3)—First and second semesters.

A survey of two thousand years of German history, outlining the cultural heritage of the German people, their great men, tradition, customs, art and literature, with special emphasis on the interrelationship of social and literary history.
(Cunz.)

German 199. Rapid Review of the History of German Literature (1)—Second semester. Especially designed for German majors.

Weekly lectures stressing the leading concepts in the history of German literature.
(Schweizer.)

Attention is called to Comparative Literature 106, *Romanticism in Germany*, and Comparative Literature 107, *The Faust Legend in English and German Literature*,

For Graduates

The requirements of students will determine which courses will be offered.

German 201. Research—Credits determined by work accomplished.

Guidance in the preparation of master's and doctoral theses. Conferences. (Staff.)

German 202, 203. The Modern German Drama (3, 3)—First and second semesters. (Zucker.)

German 204. Schiller (3). (Prahl.)

German 205. Goethe's Works Outside of Faust (2). (Zucker.)

German 206. The Romantic Movement (3). (Prahl.)

German 208. The Philosophy of Goethe's Faust (3). (Zucker.)

German 221, 222. Reading Course—(Arranged).

Designed to give the graduate student a background of a survey of German literature. Extensive outside reading, with reports and periodic conferences. (Staff.)

German 230. Introduction to European Linguistics (3). (Smith.)

German 231. Middle High German (3). (Schweizer.)

German 251, 252. Seminar (3, 3)—Required of all graduate majors in German. (Staff.)

Spanish

Spanish 1, 2. Elementary Spanish (3, 3)—First and second semesters. Spanish 2, Summer School. Three recitations and one laboratory period per week.

Elements of grammar and exercises in translation. One hour drill in pronunciation and conversation. A student who has had two units of Spanish in high school may take Spanish 1 for purposes of review, but not for credit. (Parsons and Staff.)

Spanish 3. Elementary Conversation (1)—First and second semesters. Open to all students who have completed their first year Spanish or Spanish 1 with the grade A or B.

Spanish 4, 5. Intermediate Spanish (3, 3)—First and second semesters. Summer School. Prerequisite, Spanish 1, 2, or equivalent.

Reading of texts designed to give some knowledge of Spanish and Latin-American life, thought and culture.

Spanish 8, 9. Intermediate Conversation (2, 2)—First and second semesters. Prerequisite, for Spanish 8: Spanish 3 or consent of instructor; for Spanish 9: Spanish 8 or consent of instructor.

Spanish 17. Grammar Review (3)—First and second semesters. May be taken after completion of Spanish 4 or 5. Recommended for students who expect to major or minor in Spanish.

For Advanced Undergraduates

Spanish 51, 52. Business Spanish (3, 3)—First and second semesters.
Prerequisite, second-year Spanish or equivalent.

Designed to give a knowledge of correct Spanish usage; commercial letters.

Spanish 61, 62. Spanish Phonetics (1, 1)—First and second semesters.
Prerequisite, Spanish 1, 2, or equivalent.

The pronunciation of Spanish, study of phonetics, oral exercises, and ear training.

Spanish 71, 72. Review Grammar and Composition (3, 3)—First and second semesters. Prerequisite, Spanish 4, 5 or equivalent.

Intended to give an intensive and practical drill in Spanish composition.

Spanish 75, 76. Introduction to Spanish Literature (3, 3)—First and second semesters. Prerequisite, Spanish 4, 5, or equivalent.

An elementary survey of the history of Spanish literature.

Spanish 80, 81. Advanced Conversation (3, 3)—First and second semesters.
Prerequisite, Spanish 8, 9, or consent of instructor.

Designed to give the student the ability to speak fluently about subjects of general interest.

For Advanced Undergraduates and Graduates

Spanish 101. Epic and Ballad (3)—First semester.

The legendary and heroic matter of Spain. Readings of the *Poema del Cid* and of ballads of various cycles. (Parsons.)

Spanish 102. The Spanish Popular Ballad (3)—Second semester.

Typical ballads composed and developed in the Spanish-speaking world during and since the Golden Age, with stress on the folkloristic point of view. (Goodwyn.)

Spanish 104. The Drama of the Golden Age (3)—First semester.

Selected plays of Lope de Vega, Calderon de la Barca, Tirso de Molina and others. (Parsons.)

Spanish 108. Lope de Vega (3)—First semester.

Selected plays of Lope de Vega, Calderon de la Barca, Tirso de Molina and others.

Spanish 109. Cervantes (3)—Second semester.

Selected works of Cervantes; plays, exemplary novels, and Don Quixote. (Rand.)

Spanish 110. Modern Spanish Poetry (3)—First semester.

Significant poems of the nineteenth and twentieth centuries. (Rand.)

Spanish 111. The Spanish Novel of the Nineteenth Century (3)—First semester.

Readings of some of the significant novels of the nineteenth century. (Parsons.)

Spanish 112. Modern Spanish Drama (3)—Second semester.

Significant plays of the nineteenth and twentieth centuries. (Nemes.)

Spanish 113. The Spanish Novel of the Twentieth Century (3)—Second semester.

Significant novels of the twentieth century. (Rand.)

Spanish 115. Modern Spanish Thought (3)—First semester.

The generation of 1898 and other significant and interpretative writings of the twentieth century. (Rand.)

Spanish 121, 122. Advanced Composition (3, 3)—First and second semesters.

Training in self-expression in Spanish, free composition, letter writing. (Goodwyn.)

Spanish 151. Spanish-American Fiction (3)—First semester.

The novel and short story from the Wars of Independence to the present and their reflection of society in the republics of the Western Hemisphere. (Nemes.)

Spanish 152. Spanish-American Poetry (3)—Second semester.

Representative poetry after 1800 and its relation to European trends and writers. (Nemes.)

Spanish 153. Spanish-American Essay (3)—First and second semesters.

Social and political thought from Bolivar to Vasconcelos and its relationship to social and political conditions in Spanish America. (Nemes.)

Spanish 161, 162. Spanish Civilization (3, 3)—First and second semesters.

Introductory study of the literary, educational, artistic traditions; great men, customs, and general culture. (Rand.)

Spanish 163, 164. Latin-American Civilization (3, 3)—First and second semesters.

Introductory study of the cultures of Latin America; the historical-political background and the dominating concepts in the lives of the people. (Goodwyn.)

Spanish 199. Rapid Review of the History of Spanish Literature (1)—Second semester. Especially designed for Spanish majors.

Weekly lectures stressing the leading concepts in the history of Spanish literature. (Parsons.)

For Graduates

The requirements of students will determine which courses will be offered.

Spanish 201. Research—Credits determined by work accomplished.

Guidance in the preparation of master's and doctoral theses. Conferences. (Staff.)

Spanish 202. The Golden Age in Spanish Literature (3) (Goodwyn.)**Spanish 203, 204. Spanish Poetry (3, 3). (Goodwyn.)****Spanish 211. Introduction to Old Spanish (3). (Parsons.)**

Spanish 221, 222. Reading Course—(Arranged). Designed to give the graduate student a background of a survey of Spanish literature. Extensive outside readings, with reports and periodic conferences. (Staff.)

Spanish 230. Introduction to European Linguistics (3). (Smith.)

Spanish 251, 252. Seminar (3, 3)—Required of all graduate majors in Spanish. (Staff.)

Russian

Russian 1, 2. Elementary Russian (3, 3)—First and second semesters.

Elements of grammar; pronunciation and conversation; exercises in translation.

(Boborykine.)

Russian 3. Elementary Conversation (1)—First and second semesters.

Open to all students who have completed their first-year Russian or Russian 1 with the grade A or B.

Russian 4, 5. Intermediate Russian (3, 3)—First and second semesters.

Prerequisite, Russian 1 and 2, or equivalent.

Reading of texts designed to give some knowledge of Russian life, thought and culture.

(Boborykine.)

Russian 8, 9. Intermediate Conversation (2, 2)—First and second semesters.

Prerequisite for Russian 8: Russian 3 or consent of instructor; for Russian 9; Russian 8 or consent of instructor.

Russian 71, 72. Review Grammar and Composition (3, 3)—First and second semesters. Prerequisite, first and second-year Russian.

Designed to give a thorough training in the structure of the language; drill in Russian composition.

Russian 75, 76. Introduction to Russian Literature (3, 3)—First and second semesters. Prerequisite, second-year Russian or equivalent.

An elementary survey of Russian literature.

Russian 80, 81. Advanced Conversation (3, 3)—First and second semesters.

Prerequisite, Russian 8, 9, or consent of instructor.

For students who wish to develop fluency and confidence in speaking the language.

(Boborykine.)

For Advanced Undergraduates and Graduates

Russian 101, 102. Modern Russian Literature (3, 3)—First and second semesters.

Works of Maxim Gorky, Alexei Tolstoy, P. Romanov, M. Zoshchenko, M. Sholokhov.

(Boborykine.)

Russian 103, 104. Russian Literature of the Nineteenth Century (3, 3)—First and second semesters.

Selected writings of Pushkin, Gogol, Lermantov, Turgenev, Dostoevsky, Leo Tolstoy, Chekhov.

(Boborykine.)

Hebrew

Hebrew 1, 2. Elementary Hebrew (3, 3)—First and second semesters.

Elements of grammar; pronunciation and conversation; exercises in translation.

(Greenberg.)

Hebrew 3. Elementary Conversation (1)—First semester. Prerequisite, Hebrew 1 and consent of instructor.

Hebrew 4, 5. Intermediate Hebrew (3, 3)—First and second semesters. Prerequisite, Hebrew 1 and 2 or equivalent.

Texts designed to give some knowledge of Hebrew life, thought, and culture.

(Greenberg.)

Hebrew 8, 9. Intermediate Conversation (2, 2)—First and second semesters. Prerequisite for Hebrew 8: Hebrew 3 or consent of instructor; for Hebrew 9: Hebrew 8 or consent of instructor.

An intermediate practice course in spoken Hebrew.

Hebrew 75, 76. Introduction to Hebrew Literature (3, 3)—First and second semesters. Prerequisite, second-year Hebrew or equivalent.

(Greenberg.)

Hebrew 101. The Hebrew Bible. (3)

Reading of selected portions of the Pentateuch.

Hebrew 102. The Hebrew Bible. (3)

Reading of selected portions of the Prophets and Writings.

Hebrew 103. Modern Hebrew Literature. (3)

The period of the Haskalah (Enlightenment).

Hebrew 104. Modern Hebrew Literature. (3)

The period of the Tehiah (Modern Revival).

Chinese

Chinese, 1, 2. Elementary Chinese (3, 3)—First and second semesters. Three recitations and one laboratory period per week.

Elements of pronunciation, simple ideograms, colloquial conversation, translation.

(Chen.)

Chinese 4, 5. Intermediate Chinese (3, 3)—First and second semesters. Prerequisite, Chinese 1 and 2 or equivalent.

Reading of texts designed to give some knowledge of Chinese life, thought, and culture.

(Chen.)

Chinese 161, 162. Chinese Civilization (3, 3)—First and second semesters.

This course supplements Geography 134 and 135, *Cultural Geography of East Asia*. It deals with Chinese literature, art, folklore, history, government, and great men. Second semester: Developments in China since 1911. (Given every other year, rotating with Geography 134 and 135.)

Chinese 161 and 162 may be counted as history credits in meeting major and minor requirements, and, along with Chinese 1 and 2, as meeting the 12-hour language requirement.

(Chen.)

Italian

Italian 1, 2. Elementary Italian (3, 3)—First and second semesters. Also recommended to advanced students in French and Spanish.

Elements of grammar; pronunciation; exercises in translation.

Italian 3. Elementary Conversation (1)—Prerequisite, Italian 1 and consent of instructor.

Italian 161, 162. Italian Life and Customs (3, 3)—Not offered on the College Park campus.

An introductory study of the Italian people against a background of political and social history. A survey of Italian literary and cultural traditions.

Arabic 1, 2. Modern Arabic (3, 3)—To be offered in the European Program only; for American personnel stationed in Saudi-Arabia and other Near East posts.

Modern Greek

Mod. Greek 1, 2. Spoken Modern Greek (3, 3)—Not offered on the College Park campus.

An intensive course in the colloquial style of Athens with emphasis on the vocabulary of everyday situations and including an introduction to Greek writing.

Mod. Greek 3. Elementary Conversation (1)—Not offered on the College Park Campus.

Mod. Greek 4, 5. Intermediate Greek (3, 3)—Not offered on the College Park Campus.

Literary texts and newspapers in Modern Greek.

GEOGRAPHY

Students in the College of Arts and Sciences may select Geography as a major field, and may also take courses in this department for elective credit. For a description of courses, see the catalog of the College of Business and Public Administration.

GEOLOGY

Irwin C. Brown, Lecturer

Geol. 1. Geology (3)—Prerequisite, Chem. 1, 3.

A study dealing primarily with the principles of dynamical and structural geology. Designed to give a general survey of the rocks and minerals composing the earth; the movement within it; and its surface features and the agents that form them.

Geol. 2. Engineering Geology (2).

The fundamentals of geology with engineering applications.

GOVERNMENT AND POLITICS

Students in the College of Arts and Sciences may select Government and Politics as a major field, and may also take courses in this department for elective credit. For a description of courses, see the catalog of the College of Business and Public Administration.

HISTORY

Professors Gewehr, Chatelain, Merrill, Prange, Wellborn; Associate Professors Bauer, Gordon; Assistant Professors Crosman, Davidson, Jashemski, Sparks, Stromberg; Instructors Bates, Beard, Carter, Catton, McGiffert, Riddleberger, White.

H. 1, 2. History of Modern Europe (3, 3)—First and second semesters. The basic course, prerequisite for all advanced courses in European History.

A study of European History from the Renaissance to the present day. First semester to 1815. Second semester since 1815. (Bauer, Stromberg.)

H. 5, 6. History of American Civilization (3, 3)—Required of all students who entered the university after 1944-45. Normally to be taken in the Sophomore year.

An historical survey of the main forces in American life with emphasis upon the development of our democratic heritage. First semester from the colonial period through the Civil War. Second semester, since the Civil War. (Riddleberger and Staff.)

H. 51, 52. The Humanities (3, 3)—First and second semesters.

In surveying history from prehistoric times to the present, man's cultural development is emphasized. The course is a study of the achievements of the various civilizations which have contributed to the common cultural heritage of western civilization. It is designed as an introductory course in history which will make a more direct contribution to the other liberal art fields. First semester to the Renaissance. Second semester since the Renaissance. (Jashemski.)

H. 53, 54. History of England and Great Britain (3, 3)—First and second semesters. (Gordon.)

A history of the development of British life and institutions. Open to all classes. Especially recommended for English majors and minors. First semester to 1485. Second semester, since 1485.

For Graduates and Advanced Undergraduates

A. American History

H. 101. American Colonial History (3)—First semester. Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

The settlement and development of colonial America to the middle of the eighteenth century. (Bates.)

H. 102. The American Revolution (3)—Second semester. Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

The background and course of the American Revolution through the formation of the Constitution. (Bates.)

H. 105. Social and Economic History of the United States to 1865 (3)—First semester. Prerequisites, H. 5, 6, or the equivalent.

A synthesis of American life from independence through the Civil War. (Chatelain.)

H. 106. Social and Economic History of the United States since the Civil War (3)—Second semester. Prerequisites, H. 5, 6, or the equivalent.

The development of American life and institutions, with emphasis upon the period since 1876. (Chatelain.)

H. 114. The Middle Period of American History 1824-1860 (3)—First semester. Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

An examination of the political history of the U. S. from Jackson to Lincoln with particular emphasis on the factors producing Jacksonian democracy, Manifest Destiny, the Whig Party, the anti-slavery movement, the Republican Party, and secession.

(Sparks.)

H. 115. The Old South (3)—First semester. Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

A study of the institutional and cultural life of the ante-bellum South with particular reference to the background of the Civil War. (Riddleberger.)

H. 116. The Civil War (3)—Second semester. Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

Military aspects; problems of the Confederacy; political, social, and economic effects of the war upon American society. (Sparka.)

H. 117. The New South (3)—First semester. Summer School (2). Prerequisites H. 5, 6, or the equivalent.

The South's place in the Nation from Appomattox to the present with special reference to regional problems and aspirations. (Riddleberger.)

H. 118, 119. Recent American History (3, 3)—First and second semesters. Summer School (2, 2). Prerequisites, H. 5, 6, or the equivalent.

Party politics, domestic issues, foreign relations of the United States since 1890. First semester, through World War I. Second semester, since World War I. (Merrill.)

H. 121. History of the American Frontier (3)—First semester, Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

The Trans-Allegheny West. The westward movement into the Mississippi Valley. (Gewehr.)

H. 122. History of the American Frontier (3)—Second semester, Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

The Trans-Mississippi West. Forces and factors in the settlement and development of the Trans-Mississippi West to about 1900. (Gewehr.)

H. 123. The New West (3)—Second semester. Summer School (2). Prerequisites H. 5, 6, or the equivalent.

Regional peculiarities and national significance of the Plains and Pacific Coast areas from 1890 to the present. (Bates.)

H. 124. Reconstruction and the New Nation 1865-1896 (3)—Second semester. Summer School (2). Prerequisites H. 5, 6, or the equivalent.

Problems of reconstruction in both South and North. Emergence of Big Business and industrial combinations. Problems of the farmer and laborer. (Merrill.)

H. 127, 128. Diplomatic History of the United States (3, 3)—First and second semesters. Prerequisites, H. 5, 6, or the equivalent.

An historical study of the diplomatic negotiations and foreign relations of the United States. First semester, from the Revolution to the Civil War; second semester, from the Civil War to the present. (Wellborn.)

H. 129. The United States and World Affairs (3)—Summer School (2). Prerequisites, H. 5, 6, or the equivalent.

A consideration of the changed position of the United States with reference to the rest of the world since 1917. (Wellborn.)

H. 133, 134. The History of Ideas in America (3, 3)—First and second semesters. Summer School (2, 2). Prerequisites, H. 5, 6, or the equivalent.

An intellectual history of the American people, embracing such topics as liberty, democracy, and social ideas. (Beard.)

H. 135, 136. Constitutional History of the United States (3, 3)—First and second semesters. Prerequisites, H. 5, 6, or the equivalent.

A study of the historical forces resulting in the formation of the Constitution, and the development of American constitutionalism in theory and practice thereafter.

(Gewehr.)

Amer. Civ. 137, 138. Conference Course in American Civilization (3, 3)—First and second semesters.

The student's acquaintance with American Civilization is brought to a focus through the analytical study of eight to ten important books, such as Tocqueville, *Democracy in America*, Hawthorne, *The Scarlet Letter*, Veblen, *The Theory of the Leisure Class*, and Myrdal, *An American Dilemma*. Specialists from related departments participate in the conduct of the course.

(Bode.)

H. 141, 142. History of Maryland (3, 3)—First and second semesters. Prerequisites, H. 5, 6, or the equivalent.

First semester, a survey of the political, social and economic history of colonial Maryland. Second semester, Maryland's historical development and role as a state in the American Union.

(Chatelain.)

H. 145, 146. Latin-American History (3, 3)—First and second semesters.
H. 146, Summer School (2). Prerequisites, 6 hours of fundamental courses.

A survey of the history of Latin America from colonial origins to the present, covering political, cultural, economic, and social development, with special emphasis upon relations with the United States. First semester, the Colonial Period. Second semester, The Republics.

(Crosman.)

H. 147. History of Mexico (3)—First semester.

The history of Mexico with special emphasis upon the independence period and upon relations between ourselves and the nearest of our Latin-American neighbors.

(Crosman.)

B. European History

H. 151. History of the Ancient Orient and Greece (3)—First semester.

A survey of the ancient empires of Egypt, the Near East, and Greece, with particular attention to their institutions, life, and culture.

(Jashemski.)

H. 153. History of Rome (3)—Second semester.

A study of Roman civilization from the earliest beginnings through the Republic and down to the last centuries of the Empire.

(Jashemski.)

H. 155. Medieval Civilization (3)—First semester. Summer School (2). Prerequisites, H. 1, 2, or H. 53, 54, or the permission of the instructor.

A survey of Medieval life, culture, and institutions from the fall of the Roman Empire to the thirteenth century.

(Jashemski.)

H. 161. The Renaissance and Reformation (3)—Second semester. Summer School (2). Prerequisites, H. 1, 2, or 53, 54, or the permission of the instructor.

The culture of the Renaissance, the Protestant revolt and Catholic reaction through the Thirty Years War.

(Jashemski.)

H. 166. The French Revolution (2)—First semester.

The Enlightenment and the Old Regime in France; the revolutionary uprisings from 1789 to 1799.

(Bauer, Gordon.)

H. 167. Napoleonic Europe (2)—Second semester.

European Developments from the rise of Napoleon to the Congress of Vienna.

(Bauer, Gordon.)

H. 171, 172. Europe in the Nineteenth Century, 1815-1919 (3, 3)—First and second semesters. Prerequisites, H. 1, 2, or H. 53, 54.

A study of the political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War. (Bauer.)

H. 175, 176. Europe in the World Setting of the Twentieth Century (3, 3)—First and second semesters, Summer School (2). Prerequisites, H. 1, 2, or H. 53, 54.

A study of political, economic, and cultural developments in twentieth century Europe with special emphasis on the factors involved in the two World Wars and their global impacts and significance. (Prange.)

H. 185, 186. History of the British Empire (3, 3)—First and second semesters. Hist. 186, Summer School (2). Prerequisite, H. 1, 2, or H. 53, 54.

First semester, the development of England's Mercantilist Empire and its fall in the war for American Independence (1783); second semester, the rise of the Second British Empire and the solution of the problem of responsible self-government (1783-1867), the evolution of the British Empire into a Commonwealth of Nations, and the development and problems of the dependent Empire. (Gordon.)

H. 187. History of Canada (3)—First semester. Summer School (2). Prerequisites, H. 1, 2, or H. 53, 54.

A history of Canada, with special emphasis on the nineteenth century and upon Canadian relations with Great Britain and the United States. (Gordon.)

H. 189. Constitutional History of Great Britain (3)—Second semester. A survey of constitutional development in England with emphasis on the real property aspects of feudalism, the growth of the common law, the development of Parliament, and the expansion of liberties of the individual. (Gordon.)

H. 191. History of Russia (3)—First semester. Prerequisites, H. 1, 2, or the equivalent.

A history of Russia from the earliest times to the present day. (Bauer.)

H. 192. Foreign Policy of the USSR (3)—Second semester. Summer School (2). Prerequisite, H. 191.

A survey of Russian foreign policy in the historical perspective, with special emphasis on the period of the USSR. Russian aims, expansion, and conflicts with the western powers of Europe, the Near and Middle East, and the Far East will be studied. (Bauer.)

H. 193, 194. History of European Ideas in Modern Times (3, 3)—First and second semesters. Prerequisites, H. 1, 2, or H. 53, 54 or equivalent.

Beginning with a review of the basic Western intellectual traditions as a heritage from the Ancient World, the course will present selected important currents of thought from the scientific revolution of the 16th and 17th century down to the twentieth century. First semester through the eighteenth century. Second semester, nineteenth and twentieth centuries. (Stromberg.)

H. 195. The Far East (3)—First semester. Summer School (2).

A survey of the history of China and Japan with special emphasis upon their distinctive cultures and unique contributions to civilization. (Gewehr.)

H. 199. Proseminar in Historical Writing (3)—First and second semesters.

Discussions and term papers designed to acquaint the student with the methods and problems of research and presentation. The students will be encouraged to examine those phases of history in which they are most interested. Required of history majors in senior year. (Bauer, Stromberg.)

For Graduates

H. 200. Research (3-6)—Credit proportioned to amount of work. Arranged. Required of all candidates for degrees. (Staff.)

H. 201. Seminar in American History (3)—First and second semester. Summer School (2). (Staff.)

H. 202. Historical Literature (3)—First and second semesters, Summer School (2).

Assignments in various selected fields of historical literature and bibliography to meet the requirements of qualified graduate students who need more intensive concentration. (Staff.)

H. 205, 206. Topics in American Economic and Social History (3, 3)—First and second semesters.

Readings and conferences on the critical and source materials explaining our social and economic evolution. (Chatelaine.)

H. 208. Topics in Recent American History (3)—First and second semesters.

Selected readings, research, and conferences on important topics in United States History from 1900 to the present. (Merrill.)

H. 211. The Colonial Period in American History (3)—First semester.

Readings and conferences designed to familiarize the student with some of the sources and the classical literature of American Colonial History. (Ferguson.)

H. 212. Period of the American Revolution (3)—Second semester.

Readings and conferences designed to familiarize the student with some of the critical literature and sources of the period of the American Revolution. (Ferguson.)

H. 215. The Old South (3)

Readings and conferences designed to familiarize the student with some of the standard sources and the classical literature of the ante-bellum South. (Riddleberger.)

H. 216. The American Civil War (3)

Readings and conferences on the controversial literature of the Civil War. Attention is focused upon the conflicting interpretations and upon the social and economic impact of the war on American society. Opportunity is also given to read in the rich source material of this period. (Sparks.)

H. 217. Reconstruction and Its Aftermath (3)

A seminar on problems resulting from the Civil War. Political, social and economic reconstruction in South and North; projection of certain post-war attitudes and problems into the present. (Merrill.)

H. 221, 222. History of the West (3, 3)—First and second semesters. Summer School (2, 2).

Readings and conferences designed to give the student an acquaintance with some of the more important sources and some of the most significant literature of the advancing American frontier. (Gewehr.)

H. 233, 234. Topics in American Intellectual History (3, 3)

Readings and conferences on selected phases of American thought, with emphasis on religious traditions, social and political theory, and development of American ideas. (Beard.)

H. 245. Topics in Latin American History (3)—Selected readings, research, and conferences on important topics in Latin American History. (Crosman.)

H. 250. Seminar in European History (3)—First and second semesters. Summer School (2). (Bauer.)

H. 251. Topics in Greek Civilization (3)—Readings and conferences designed to acquaint the students with selected topics and sources in Greek and Hellenistic history. (Jashemski.)

H. 253. Topics in Roman History (3)—Readings and conferences designed to acquaint the student with selected topics and sources in Roman history. (Jashemski.)

H. 255. Medieval Culture and Society (3)

Readings and conferences designed to acquaint the student with the important literature and interpretations on such topics as feudalism, the medieval Church, schools and universities, Latin and vernacular literature, art and architecture. (Jashemski.)

H. 282. Problems in the History of World War II (3)—Investigation of various aspects of the Second World War, including military operations, diplomatic phases, and political and economic problems of the war and its aftermath. (Prange.)

H. 285, 286. Topics in the History of Modern England and Greater Britain (3, 3)

Readings and conferences on the documentary and literary materials dealing with the transformation of England and the growth and evolution of the British Empire since 1763. (Gordon.)

H. 287. Historiography (3)—First and second semesters.

Readings and occasional lectures on the historical writing, the evolution of critical standards, the rise of auxiliary sciences, and the works of selected masters. (Sparks.)

LIBRARY SCIENCE

Professor Rovelstad; Assistant Professor Urban; Instructors Baehr, Carper, Dewey, Hayes, Phillips, Pierson, Turner, Urban and Wedemeyer.

L. S. 1, 2. Library Methods (1, 1)—First and second semesters.

Library Science 1 and 2 are required of all students in general Arts and Science, Pre-Law and Pre-Nursing curriculums.

These introductory courses are intended to help students to use libraries with greater facility and effectiveness. Instruction, given in the form of lectures and practical work, is designed to interpret the library and its resources to the students. The courses consider the classification of books in libraries, the card catalog, periodical literature and indexes, and certain essential reference books which will be found helpful throughout the college course and in later years.

L. S. 101S. School Library Administration (3).

The organization and maintenance of effective library service in the modern school. Planning and equipping library quarters, purpose of the library in the school, standards, instruction in the use of books and libraries, training student assistants, acquisition of materials, repair of books, publicity, exhibits, and other practical problems.

L. S. 102S. Cataloging and Classification (3).

Study and practice in classifying books and making dictionary catalog for school

libraries. Study of simplified forms as used in the Children's Catalog, Standard Catalog for High School Libraries, and Wilson printed cards.

L. S. 103S. Book Selection for School Libraries (3).

Principles of book selection as applied to school libraries. Practice in the effective use of book selection aids in the preparation of book lists. Evaluating of publishers, editions, translations, format, etc.

L. S. 104S. Reference and Bibliography for School Libraries (4).

Evaluation, selection, and use of standard tools, such as encyclopedias, dictionaries, periodical indexes, atlases, and yearbooks for school libraries. Study of bibliographical procedures and forms.

L. S. 111. Introduction to Fundamentals of Special Library Service (3).

An introductory course of library methods as applied to an organization in which the primary function of the library is bibliographic control of material pertinent to the specialized field of the organization. A course planned to train in general library methods a person who already is a specialist in some particular phase of library service.

MATHEMATICS

Professors Jackson, Hall, Martin; Research Professor Weinstein*; Associate Professors Fullerton, Good, Ludford, Polachek, Young; Associate Research Professors Diaz*, Payne*; Assistant Professors Brace, Haywood, G. Spencer; Assistant Research Professor Weinberger*; Instructors Beiman, Brewster, Correl, Ehrlich, Esser, Fadnis, Greenspan, Hsu, MacCarthy, McAuley, Rosen, Shepherd, Triplett; Instructor Part Time Lepson; Junior Instructors Burda, Dyer, Ingersoll, Wilkinson; Junior Instructors Part Time Anderson, Bauer, Diggs, Hill, Koo, Laman-ski, C. Spencer, Steely, Woodburn.

The Colloquium meets weekly for reports on the research of the faculty and graduate students, and for expository lectures on papers published in current mathematical journals.

The Mathematics Club meets once a month under the direction of Dr. Erhlich for the discussion of mathematical topics of interest to the undergraduate.

The following courses are open to students who offer at least one unit of algebra for entrance: Math. 1, 5, or 10.

The following course is open to students who offer two or more units of algebra for entrance: Math. 18.

Students are enrolled in Math. 5, 10, or 18 provided they pass the Mathematics section of the general classification test given to incoming students during registration. Students who fail this test should enroll in Math. 0 if their curriculum calls for Math. 5 or 10, and in Math 1 if their curriculum calls for Math. 18.

In general students should enroll in only one of the course sequences, Math. 5, 10-11, 18-19, and former 15-14-17. In case this rule is not followed, proper assignment of credit will be made upon application to the Department of Mathematics. The following are listed as typical situations:

Math. 5, 10, 18. Credit in only one course: the one enrolled in latest.

Math. 11, 18. Math. 11—1 credit; Math. 18—5 credits.

The department strongly recommends that a student who receives a grade of D in a course in mathematics repeat the course to raise his grade before going on to a more advanced course.

Math. 0. Basic Mathematics (0)—First and second semesters. Required of students whose curriculum calls for Math. 5 or 10 and who fail the qualifying examination for these courses.

The fundamental principles of algebra.

(Haywood and Staff.)

Math. 1. Introductory Algebra (0)—First and second semesters. Prerequisite, one unit of algebra. Required of students whose curriculum calls for Math. 18 and who fail the qualifying examination for this course.

A review of the topics covered in a second course in algebra. (Haywood and Staff.)

Math. 2. Solid Geometry (0)—First and second semesters. Prerequisite, one unit each of algebra and plane geometry. Open to students who enter deficient in solid geometry. Students in the College of Education may be granted two credits for Math. 2.

Lines, planes, cylinders, cones, the sphere and polyhedra, primary emphasis on mensuration. Intended for engineers and science students. (Brewster and Staff.)

Math. 3. Fundamentals of Mathematics (4)—First and second semesters.

This course is open to all students and is designed to give an introduction to mathematical thinking. Content: logical structure for several elementary mathematical systems, historical advances in typical phases of mathematics and their role in world development, famous unsolvable problems, currently unsolved problems, applications of mathematics to other fields of learning. (Haywood and Staff.)

Math. 5. General Mathematics (3)—First and second semesters. Summer School. Prerequisite, one unit of algebra. Open only to students in the College of Business and Public Administration, the College of Agriculture, the College of Military Science, and the Department of Industrial Education. Note regulation above in case student enrolls in more than one of the courses, Math. 5, 10, 18.

Fundamental operations, fractions, ratio and proportion, linear equations, exponents, logarithms, percentage, trade discount, simple interest, bank discount, true discount, and promissory notes. (Shepherd and Staff.)

Math. 6. Mathematics of Finance (3)—First and second semesters. Summer School. Prerequisite Math 5 or equivalent. Required of students in the College of Business and Public Administration, and open to students in the College of Arts and Sciences only for elective credit.

Line diagrams, compound interest, simple interest, ordinary annuities, general annuities, deferred annuities, annuities due, perpetuities, evaluation of bonds, amortization, and sinking funds. (Shepherd and Staff.)

Math. 10. Algebra (3)—First and second semesters. Summer School. Prerequisite, one unit each of algebra and plane geometry. Open to biological, premedical, pre dental, and general Arts and Sciences students. Note regulation

above, in case student enrolls in more than one of the courses, Math. 5, 10, 18.

Fundamental operations, factoring fractions, linear equations, exponents and radicals, quadratic equations, progressions, logarithms, permutations and combinations, probability, mathematics of investment. (Haywood and Staff.)

Math. 11. Trigonometry and Analytic Geometry (3)—First and second semesters. Summer School. Prerequisite, Math. 10 or equivalent. Open to biological, premedical, pre dental, and general Arts and Sciences students. This course is not recommended for students planning to enroll in Math. 20. Note regulation above, in case student enrolls in more than one sequence, Math. 10-11, 18-19, 17.

Trigonometric functions, identities, addition formulas, solution of triangles, coordinates, locus problems, the straight line and circle, conic sections, graphs.

(Haywood and Staff.)

Math. 13. Elements of Mathematical Statistics (3)—Second semester. Prerequisite, Math. 10 or equivalent.

Frequency distributions, averages, moments, measures of dispersion, the normal curve, curve fitting, regression and correlation. (Good.)

Math. 16. Spherical Trigonometry (2)—First and second semesters. Prerequisites, solid geometry and Math. 18.

The solution of spherical triangles, with applications to the terrestrial and astronomical triangles. (Brewster and Staff.)

Math. 17. Analytic Geometry (4)—Three lectures and two one-hour drill periods a week, first semester. Not offered after January 1957. Prerequisite, Math. 14 and 15, or equivalent. Open to students in engineering, education, and the physical sciences. Note regulation above, in case student enrolls in more than one sequence, Math. 10-11, 18-19, 17.

Coordinates, locus problems, the straight line and circle, graphs, transformation of coordinates, conic sections, parametric equations, transcendental equations, solid analytic geometry. (Spencer and Staff.)

Math. 18, 19. Elementary Mathematical Analysis (5, 5)—First and second semesters. Summer School. Prerequisites, high school algebra completed and plane geometry. Open to students in the physical sciences, engineering, education. Note regulation above, in case student enrolls in more than one of the course sequences, Math. 5, 10-11, or 17, or 18-19.

The elementary mathematical functions, composed of algebraic, exponential, trigonometric types and their inverses, are studied by means of their properties, their graphical representations, the identities interconnecting them, the solution of equations involving them. The beginning techniques of calculus and a full discussion of solid analytic geometry are included. Other material may be selected from such topics as permutations, combinations, probability, statistics, determinants, vectors, and matrices.

(Rosen and Staff.)

Math. 20, 21. Calculus (4, 4)—Three lectures and two one-hour drill periods a week, first and second semesters. Summer School. Prerequisite, Math. 17 or equivalent. Open to students in engineering, education, and the physical sciences.

Limits, derivatives, differentials, maxima and minima, curve sketching, rates, curvature, kinematics, integration with geometric and physical applications, partial derivatives, space geometry, multiple integrals, infinite series. (Rosen and Staff.)

Math. 64. Differential Equations for Engineers (3)—First and second semesters. Summer School. Prerequisite, Math. 21 or equivalent. Required of students in mechanical and electrical engineering.

Differential equations of the first and second order with emphasis on their engineering applications. (Ludford and Staff.)

A. Algebra

For Graduates and Advanced Undergraduates

Math. 100. Higher Algebra (3)—First semester. Prerequisite, Math. 21 or equivalent.

The algebra of vector spaces and matrices, with emphasis upon those aspects of interest to students in applied mathematics. (Good.)

Math. 103, 104. Introduction to Modern Algebra (3, 3)—Prerequisite, Math. 21 or equivalent. For Math. 104, the usual prerequisite of Math. 103 may be waived upon consent of instructor.

In Math. 103 are studied the basic concepts of abstract algebra: integral domains, divisibility, congruences; fields, ordered fields; the fields of rational numbers, of real numbers, of complex numbers; polynomial domains over a field, including classical results on the theory of polynomial equations with rational, real, or complex coefficient; unique factorization domains, irreducibility criteria; rings. In Math. 104 are studied groups, vector spaces, linear transformations, matrices. (Ehrlich.)

Math. 106. Introduction to the Theory of Numbers (3)—Second semester. Prerequisite, Math. 21 or equivalent.

Integers, divisibility, Euclid's algorithm, Diophantine equations, prime numbers, Moebius function, congruences, residues. (Good.)

For Graduates

Math. 200, 201. Modern Algebra (3, 3)—Prerequisite, Math. 103 or consent of instructor.

Groups, rings, fields, algebraic numbers, Galois theory. (Good.)

Math. 202. Matrix Theory (3)—Second semester. Prerequisite, Math. 103 or consent of instructor.

The theory of vectors and matrices with applications. (Ehrlich.)

Math. 204, 205. Topological Groups (3, 3)—Prerequisite, consent of instructor.

An introductory course in abstract groups, topological spaces, and the study of collections of elements enjoying both these properties. The concept of a uniform space will be introduced and studied. The representation problem will be considered together with the subject of Lie groups. (Hall, Good.)

Math. 271. Selected Topics in Algebra (3)—(Arranged).

B. Analysis

For Graduates and Advanced Undergraduates

Math. 110, 111. Advanced Calculus (3, 3)—Prerequisite, Math. 21 or equivalent.

Limits, continuous functions, differentiation and integration with application to mechanics, infinite series, Fourier series, functions of several variables, multiple integrals, the theorems of Gauss and Stokes, the calculus of variations. (Rosen.)

Math. 114. Differential Equations (3)—Second semester. Prerequisite, Math. 110 or equivalent.

Ordinary differential equations, symbolic methods, successive approximations, solutions in series, orthogonal functions, Bessel functions, Sturmian theory. (Esser.)

Math. 115. Partial Differential Equations (3)—Prerequisite, Math. 114.

Partial differential equations of first and second order, characteristics, boundary value problems, systems of equations, applications. (Spencer.)

Math. 116. Introduction to Complex Variable Theory (3)—Summer School. Prerequisite, Math. 21 or equivalent. Open to students in engineering and the physical sciences. Graduate students in mathematics should enroll in Math. 210, 211.

Fundamental operations in complex numbers, differentiation and integration, sequences and series, power series, analytic functions, conformal mapping, residue theory, special functions. (Ludford.)

Math. 117. Fourier Series (3)—Prerequisite, Math. 114 or equivalent.

Representation of functions by series of orthogonal functions. Applications to the solution of boundary value problems of some partial differential equations of physics and engineering. (Ludford.)

For Graduates

Math. 210, 211. Functions of a Complex Variable (3, 3)—Prerequisite, Math. 111 or equivalent.

Complex numbers, infinite series, Cauchy-Riemann equations, conformal mapping, complex integral, the Cauchy theory, the Weierstrass theory, Riemann surfaces, algebraic functions, periodic and elliptic functions, the theorems of Weierstrass and Mittag-Leffler. (Haywood.)

Math. 212.* Special Functions (3)—Second semester. Prerequisite, Math. 210 or consent of instructor.

Gamma function; second order differential equations in the complex domain, regular and irregular singularities; hypergeometric functions, Riemann's P- functions, Legendre functions, confluent hypergeometric functions, Whittaker functions, Bessel functions. (Diaz.)

Math. 213, 214. Functions of a Real Variable (3, 3)—Prerequisite, Math. 111 or equivalent.

The real number system, point sets, the Heine-Borel theorem, continuous functions, derivatives, infinite series, uniform convergence, the Riemann integral, Jordan content, the Lebesgue integral, Fourier series. (Fullerton.)

Math. 215, 216. Advanced Differential Equations (3, 3)—Prerequisites, Math. 100 and 111 and 114, or consent of instructor.

Existence and uniqueness theorems for systems of ordinary differential equations and for partial differential equations, characteristic theory, reduction to normal forms, the methods of finite differences. (Young.)

Math. 217. Existence Theorems in Differential Equations (3)—Second semester. Prerequisite, Math. 114.

Recent results on the existence of solutions of quasi-linear systems of partial differential equations. (Spencer.)

Math. 218. Integral Equations (3)—First semester. Prerequisites, Math. 100 and 211, or consent of instructor.

Integral equations of the first and second kind, Volterra's equation, Abel's equation and fractional differentiation; the Fredholm theory, the Hilbert-Schmidt theory, Mercer's theorem, expansion in orthonormal series; existence theorems of potential theory and other applications. (Ludford.)

Math. 272. Selected Topics in Analysis (3)—(Arranged).

Math. 280, 281. Linear Spaces (3, 3)—Prerequisite, Math. 214 or equivalent.

Linear vector spaces and their topologies, linear operations and transformations and their inverses, Banach and Hilbert spaces. (Brace.)

C. Geometry and Topology

For Graduates and Advanced Undergraduates

Math. 122, 123. Elementary Topology (3, 3)—Prerequisite, Math. 21 or equivalent.

Open and closed sets, elementary topology of the straight line and the Euclidean plane, the Jordan Curve Theorem and its applications, simple connectivity. (McAuley.)

Math. 124, 125. Introduction to Projective Geometry (3, 3)—Prerequisite, Math. 21 or equivalent.

Elementary projective geometry largely from the analytic approach, projective transformations, cross ratio, harmonic division, projective coordinates, projective theory of conics, Laguerre's definition of angle. (Jackson.)

Math. 126, 127. Introduction to Differential Geometry and Tensor Analysis (3, 3)—Prerequisite, Math. 21 or equivalent.

The differential geometry of curves and surfaces with the use of vector and tensor methods, curvature and torsion, moving frames, curvilinear coordinates, the fundamental differential forms, covariant derivatives, intrinsic geometry, curves on a surface, applications to problems in dynamics, mechanics, electricity, and relativity. (Jackson.)

Math. 128, 129. Higher Geometry (3, 3)—Prerequisite, Math. 21 or consent of instructor. Math. 128 is not a prerequisite for Math. 129. Open to students in the College of Education.

This course is designed for students preparing to teach geometry in high school. The first semester is devoted to the modern geometry of the triangle, circle and sphere. In the second semester emphasis is placed on the axiomatic development of Euclidean and non-Euclidean geometry. (Jackson.)

For Graduates

Math. 220, 221. Differential Geometry (3, 3)—Prerequisite, Math. 111 and 152, or consent of instructor.

Curves and surfaces, geometry in the large, the Gauss-Bonnet formula, surfaces of constant curvature. (Jackson.)

Math. 223, 224. Algebraic Topology (3, 3)—Prerequisite, Math. 103 and 123, or consent of instructor.

Homology, cohomology, and homotopy theory of complexes and spaces. (Spencer.)

Math. 225, 226. Set-theoretic Topology (3, 3)—Prerequisite, Math. 123 or consent of instructor.

Foundations of mathematics based on a set of axioms, metric spaces, convergence and connectivity properties of point sets, continua and continuous curves, the topology of the plane. (Hall.)

Math. 273. Selected Topics in Geometry and Topology (3)—Arranged)

D. Probability and Statistics

For Graduates and Advanced Undergraduates

Math. 130. Probability (3)—First semester. Prerequisite, Math. 21 or equivalent.

Combinatory analysis, total, compound, and inverse probability, continuous distributions, theorems of Bernoulli and Laplace, theory of errors. (Good.)

Math. 132. Mathematical Statistics (3)—Second semester. Prerequisite, Math. 21 or equivalent.

Frequency distributions and their parameters, multivariate analysis and correlation, theory of sampling, analysis of variance, statistical inference. (Esser.)

Math. 133. Advanced Statistical Analysis (3)—Second semester. Prerequisite, Math. 132 or equivalent.

Advanced methods in correlation analysis, regression analysis, analysis of variance, and sequential analysis, curve fitting, testing of hypotheses, non-parametric testing, machine tabulation in statistics. (Hsu.)

E. History

For Graduates and Advanced Undergraduates

Math. 140. History of Mathematics (3)—Second semester. Prerequisite, Math. 21 or consent of instructor.

A survey of the historical development of mathematics and of the mathematicians who have contributed to that development. (Good.)

F. Mathematical Methods

For Graduates and Advanced Undergraduates

Math. 150, 151. Advanced Mathematics for Engineers and Physicists (3, 3)—Prerequisite, Math. 21 or equivalent.

An introduction to advanced mathematical methods and their application to the technical problems of physics and engineering. Topics include Fourier series, matrices, ordinary and partial differential equations of applied mathematics, numerical methods, Bessel functions, complex variables, operational calculus. (Martin.)

Math. 152. Vector Analysis (3)—First semester. Summer School. Prerequisite, Math. 21 or equivalent.

Algebra and calculus of vectors and applications. (Fadnis.)

Math. 153. Operational Calculus (3)—First semester. Prerequisite, Math. 21 or equivalent.

Operational solutions of ordinary and partial differential equations, Fourier and Laplace transforms. (Martin.)

Math. 155. Numerical Analysis (3)—First semester. Prerequisite, Math. 110 and 114, or consent of instructor.

A brief survey of computing machines, study of errors involved in numerical computations, the use of desk machines and tables, numerical solution of polynomial and transcendental equations, interpolation, numerical differentiation and integration, ordinary differential equations, systems of linear equations. (Young.)

Math. 156. Programming for High Speed Computers (3)—Second semester. Prerequisite, Math 21 or equivalent.

General characteristics of high-speed automatic computers; logic of programming, preparation of flow charts, preliminary and final coding; scaling, use of floating point routines; construction and use of subroutines; use of machine for mathematical operations and for automatic coding. Each student will prepare and, if possible, run a problem on a high speed computer. (Young.)

For Graduates

Math. 250. Tensor Analysis (3)—First semester. Prerequisites, Math. 100 and 152, or consent of instructor.

Algebra and calculus of tensors, Riemannian geometry and its extensions, differential invariants; applications to physics and engineering, and in particular the theory of relativity. (Weinberger.)

Math. 251. Hilbert Space (3)—First semester. Prerequisites, Math. 100 and 214, or consent of instructor.

The original and general Hilbert space, scalar product, metric, strong and weak convergence, linear functionals, symmetric operators, complete continuity, eigenvalues, orthonormal systems, Schwarz-Bessel inequality and Parseval identity, eigenvalues in sub-spaces, spectral theorem. (Weinstein.)

Math. 252. Variational Methods (3)—Second semester. Prerequisite, Math. 260 or consent of instructor.

The Euler-Lagrange equation, minimal principles in mathematical physics, estimation of capacity, torsional rigidity and other physical quantities; symmetrisation, isoperimetric inequalities estimation of eigenvalues; the minimax principle. (Weinstein.)

Math. 255, 256. Advanced Numerical Analysis (3, 3)—Prerequisites, Math. 100 and 155, or consent of instructor.

Review of numerical differentiation and integration, solution of ordinary differential equations, stability, accuracy, use of high-speed digital machines, properties of elliptic, hyperbolic and parabolic partial differential equations, conversion of partial differential equations to partial difference equations, stability and convergence of methods for solving partial difference equations, rates of convergence of relaxation methods, gradient methods, iterative methods, the method of characteristics. General methods of solving problems, existence and uniqueness theorems for difference equations associate with partial differential equations, stability of solutions, perturbation, iterative procedures, steepest descent, eigenvalue problems. (Young.)

G. Mathematical Physics

For Graduates and Advanced Undergraduates

Math. 160, 161. Analytic Mechanics (3, 3)—Prerequisite, Math. 21 or equivalent.

Statics, kinematics, dynamics of a particle, elementary celestial mechanics, Lagrangian equations for dynamical systems of one, two, and three degrees of freedom, Hamilton's principle, the Hamilton-Jacobi partial differential equation. (Ludford.)

For Graduates

Math. 260. Foundations of Mathematical Physics (3)—First semester. Prerequisite, consent of instructor.

General survey of mathematical methods and results employed in various branches of mathematical physics. The following are among the general topics to be discussed: vector analysis and integral identities (Green-Gauss, Stokes, etc.), ordinary and partial differential and difference equations, integral equations, formulation of typical boundary and initial value problems and indication of the main methods of solution. (Diaz.)

Math. 261, 262. Fluid Dynamics (3, 3)—Prerequisite, Math. 260 or consent of instructor.

Basic kinematic and dynamic concepts, equation of continuity, velocity potential and stream function, vorticity, Bernoulli's equation; perfect incompressible fluids, Helmholtz' vorticity theorems, plane hydrodynamics, Kutta-Joukowski theory of lift, conformal mapping, vortices and vortex streets, Prandtl-Munk theory of finite wings; viscous fluids, Navier-Stokes equations, boundary layer theory; perfect gases, method of characteristics, subsonic, transonic, and supersonic flows, hodograph method, theory of shock waves. (Payne.)

Math. 263, 264. Elasticity (3, 3)—Prerequisites, Math. 100 and 260, or consent of instructor.

Stress and strain, nuclei of strain, compatibility equations, Saint-Venant principle, bending, torsion and flexure of beams, complex variable methods, Airy's stress function, axial symmetry, strain energy and potential energy, buckling, bending, and vibration of plates and shells. (Weinberger)

Math. 265. Hyperbolic Differential Equations (3)—Second semester. Prerequisite, Math. 260 or consent of instructor.

Two variables, Cauchy's problem, characteristics, Riemann's method, properties of the Riemann function, quasi-linear equations and canonical hyperbolic systems, wave equation in n -dimensions, methods of Hadamard and Riesz, Euler-Poisson equation and the singular problems. Huygens' principle. (Ludford.)

Math. 266. Elliptic Differential Equations (3)—First semester. Prerequisite, Math. 260 or consent of instructor.

The equations of Laplace and Poisson, flux, the theorems of Gauss and Green, potentials of volume and surface distributions, harmonic functions, Green's function and the problems of Dirichlet and Neumann; linear elliptic equations with variable coefficients, in particular the equations of Stokes and Beltrami; fundamental solutions, the principle of the maximum, and boundary value problems; introduction to the theory of non-linear equations. (Payne.)

Math. 274. Selected Topics in Applied Mathematics (3)—(Arranged.)

H. For Teachers of Mathematics.

For Graduates and Advanced Undergraduates

Math. 181. Foundations of Number Theory (3)—Summer school. Designed primarily for those enrolled in programs with emphasis in the teaching of science. Not open to students seeking a major directly in the physical sciences, since the course content is usually covered elsewhere in their curriculum.

Axiomatic development of the real numbers. Elementary number theory. (Jackson.)

Math. 182. Foundations of Algebra (3)—Summer school. Designed primarily for those enrolled in programs with emphasis in the teaching of science.

Not open to students seeking a major directly in the physical sciences, since the course content is usually covered elsewhere in their curriculum.

Modern ideas in algebra and topics in the theory of equations. (Ehrlich.)

Math. 183. Foundations of Geometry (3)—Summer school. Designed primarily for those enrolled in programs with emphasis in the teaching of science. Not open to students seeking a major directly in the physical sciences, since the course content is usually covered elsewhere in their curriculum.

A study of the axioms for Euclidean and non-Euclidean geometry. (Jackson.)

Math. 184. Foundations of Analysis (3)—Summer school. Designed primarily for those enrolled in programs with emphasis in the teaching of science. Not open to students seeking a major directly in the physical sciences, since the course content is usually covered elsewhere in their curriculum.

A study of the limit concept and the calculus. (Previous knowledge of calculus is not required.) (Spencer.)

I. Research

For Graduates and Advanced Undergraduates

Math. 190, 191. Honors Reading Course (3, 3)—Prerequisite, permission by the department to work for honors.

Selected reading on topics in mathematics of special interest to the student under the guidance of a staff member. (Jackson.)

For Graduates

Math. 298. Proseminar in Research (1)—Second semester. Prerequisite, one semester of graduate work in mathematics.

A seminar devoted to the foundations of mathematics, including mathematical logic, axiom systems, and set theory. (Fullerton.)

Math. 300. Research—(Arranged).

ASTRONOMY

Astr. 1, 2. Astronomy (3, 3).

An elementary course in descriptive astronomy. (Roth.)

Astr. 5. Navigation (3)—Prerequisite, Math. 14 and 16.

The theory and practice of navigation. (Not offered 1955-1956.)

MUSIC

Professors Ulrich, Grentzer, Randall; Associate Professor Springmann; Assistant Professors Henderson, Jordan; Instructors Carow, Denker, Haslup, Kemble, Meyer, Payler.

Music 1. Introduction to Music (3)—First semester. Three lectures per week. Open to all students in the University, and required of all Music majors in the first semester of the freshman year.

A study of the forms and styles of music, leading to an intelligent appreciation of the art and providing a foundation for more advanced courses in the Department of Music.

Music 4. Men's Glee Club (1)—First and second semesters.

Open to any student who can qualify. May be taken until a total of six semester hours of credit has been earned; the music studied will cover a cycle of about six semesters.

Music 5. Women's Chorus (1)—First and second semesters.

Open to any student who can qualify. May be taken until a total of six semester hours of credit has been earned; the music studied will cover a cycle of about six semesters.

Music 6. Orchestra (1)—First and second semesters.

Open to any student who can qualify. May be taken until a total of six semester hours of credit has been earned; the music studied will cover a cycle of about six semesters.

Music 7, 8. Theory of Music (3, 3)—First and second semesters. Two lectures and two laboratory hours per week.

A fundamental course in the elements of music. Study of rhythms, scales, chord structures, and tonalities through ear training, sight singing, and keyboard drill. The student must achieve a grade of B in Music 8 in order to register for Music 17 and 70.

Music 10. Band (1)—First and second semesters.

Open to any student who can qualify. May be taken until a total of six semester hours of credit has been earned; the music studied will cover a cycle of about six semesters.

Music 15. Chapel Choir (1)—First and second semesters. Summer School.

Open to all students in the University, subject to the Director's approval. The Choir will appear at services held in the Memorial Chapel. May be taken until a total of six semester hours of credit has been earned.

Music 16. Music Fundamentals for the Classroom Teacher (3)—First and second semesters. Open to students majoring in Elementary Education or Childhood Education; other students take Music 7. Music 7 and 16 may not both be counted for credit.

The fundamentals of music theory and practice, related to the needs of the classroom and kindergarten teacher, and organized in accord with the six-area concept of musical learning.

Music 17, 18. Dictation and Sight Singing (2, 2)—First and second semesters. Prerequisite: completion of Music 8 with a grade of at least B. Music-Education majors must take Music 70 concurrently with Music 17, and Music 71 with Music 18. One lecture and two laboratory hours per week.

Harmonic, melodic, rhythmic, and contrapuntal dictation. Sight-singing of two-, three-, and four-part music, and an introduction to clef reading.

Music 21, 22. Class Voice (2, 2)—First and second semesters. Beginning course. Two two-hour laboratory periods per week.

Fundamentals of tone production and diction, and correct breathing as applied to singing.

Music 23, 24. Class Piano (2, 2)—First and second semesters. Beginning course. Two two-hour laboratory periods per week.

Fundamentals of hand position, and technical problems related to acquiring facility at the piano.

Music 50. Elementary Conducting (2)—First semester.

Techniques of the baton, based on fundamental meter designs; score reading, interpretation, and accompanying. Eurhythmics are applied to develop the sense of rhythm. Practical experience in conducting choral and simple orchestral music.

Music 70, 71. Harmony (3, 3)—First and second semesters. Prerequisite: completion of Music 8 with a grade of at least B. Music-Education majors must take Music 17 concurrently with Music 70, and Music 18 with Music 71. Two lectures and two laboratory hours per week.

A review of music theory and a study of harmonic progressions, triads, dominant sevenths and ninths in root positions and inversions. Altered and mixed chords, modulation, enharmonic intervals. Simple harmonizations and original composition.

Music 80, 81. Class Study of Instruments (2, 2)—First and second semesters. Four laboratory hours per week.

A study of the techniques of orchestral and band instruments. Practical experience on the instruments in class ensembles. Music 80, strings; Music 81, winds and percussion.

Music 110. American Music (2)—Second semester.

Designed to be an integral part of the American Civilization program, the course is a survey of the development of music in the United States from Colonial days to the present. Phases of our musical history which are studied include early hymn writers, Stephen Foster, the negro spiritual, and twentieth-century music.

Music 120, 121. History of Music (3, 3)—First and second semesters. Prerequisites: Music 1 and junior standing.

A study of musical styles from their origins in western Europe to their present-day manifestations. The interaction of music and other cultural activities. Music 120, the Greek period to Bach; Music 121, Bach to the present.

Music 141, 142. Musical Form (2, 2)—First and second semesters. Prerequisites: Music 70 and 71.

A study of the organizing principles of musical composition, their interaction in musical forms, and their functions in different styles. Music 141, the phrase to the rondo; Music 142, the larger forms.

Music 143, 144. Composition (2, 2)—First and second semesters. Prerequisites: Music 70 and 71.

The principles of musical composition, and their application to the smaller forms. Original writing in nineteenth- and twentieth-century musical idioms for various media.

Music 145, 146. Counterpoint (2, 2)—First and second semesters. Prerequisites: Music 70 and 71.

A course in eighteenth-century contrapuntal techniques. Study of devices of imitation in the invention and the choral prelude. Original writing in the smaller contrapuntal forms.

Music 147, 148. Orchestration (2, 2)—First and second semesters. Prerequisites: Music 70 and 71.

A study of the ranges, musical functions, and technical characteristics of the instruments, and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

Music 150. Keyboard Harmony (2)—First semester. Prerequisite: Music 70 and 71. One lecture and two laboratory hours per week.

The application to the piano keyboard of the harmonic principles acquired in Music

70 and 71. Harmonization of melodies, improvisation and accompanying, playing from dictation, and transposition.

Music 160, 161. Advanced Conducting Methods (2, 2)—First and second semesters. Prerequisite: Music 50.

Materials and methods of conducting larger ensembles. Tone production, interpretation, more complex score-reading. Practical experience is obtained. Music 160, choral conducting; Music 161, orchestral and band conducting.

Music 163. Band Techniques and Administration (2)—Second semester. Prerequisites: Music 81 and 161. Two lectures and two laboratory hours per week. Intensive study of a secondary wind instrument and of rehearsal techniques. A survey of instructional materials, administrative procedures, and band pageantry will be included.

Music 166. Survey of the Opera (3)—Second semester. Prerequisite: Music 120 and 121 or the equivalent.

A study of the music, librettos, and composers of the standard operas.

Music 167. Symphonic Music (3). First semester. Summer school (2). Prerequisites: Music 120 and 121 or the equivalent.

The study of orchestral music from the Baroque period to the present. The concerto, symphony, overture, and other forms are examined.

Music 168. Chamber Music (3). Second semester. Prerequisites: Music 120 and 121 or the equivalent.

The history and literature of Chamber Music from the early Baroque period to the present. Music for trio sonata, string quartet and quintet, and combinations of piano and string instruments is studied.

Music 169. Choral Music (3). First semester. Prerequisite: Music 120 and 121 or the equivalent.

The history and literature of choral music from the Renaissance to the present, with discussion of related topics such as Gregorian chant, vocal chamber music, etc.

APPLIED MUSIC

A new student or one taking applied music for the first time at this University should, in any applied-music course other than Music 0 (Piano), register for Music X (Piano) or Music X (Violin), etc. He will receive the proper classification at the end of his first semester in the Department.

Music 0 (Piano) (0)—First and second semesters. Two half-hour lessons and six practice hours per week.

Basic piano course required of all music majors whose principal instrument is not piano, and to be taken until minimum proficiency is attained. Special fee of \$40.00 per semester.

Music 12, 13. Applied Music (2, 2)—First and second semesters. Freshman course. Two half-hour lessons and six practice hours per week.

The student will register for Music 12 (Piano), or Music 12 (Voice), or Music 12 (Violin), etc. Special fee of \$40.00 per semester.

Music 52, 53. Applied Music (2, 2)—First and second semesters. Sophomore course. Prerequisite: Music 13 on the same instrument. Two half-hour

lessons and six practice hours per week.

The student will register for Music 52 (Piano), or Music 52 (Voice), or Music 52 (Violin), etc. Special fee of \$40.00 per semester.

Music 112, 113. Applied Music (2, 2)—First and second semesters. Junior course. Prerequisite: Music 53 on the same instrument. Two half-hour lessons and six practice hours per week.

The student will register for Music 112 (Piano), or Music 112 (Voice), or Music 112 (Violin), etc. Special fee of \$40.00 per semester.

Music 152, 153. Applied Music (2, 2)—First and second semesters. Senior course. Prerequisite: Music 113 on the same instrument. One one-hour lesson and six practice hours per week.

The student will register for Music 152 (Piano), or Music 152 (Voice), or Music 152 (Violin), etc. Special fee of \$40.00 per semester.

PHILOSOPHY

Professor Garvin; Assistant Professors Robinson, Schlaretzki.

Phil. 1. Introduction to Philosophy (3)—Each semester.

A critical survey of representative philosophical beliefs concerning the nature of man and the universe and the nature and function of scientific knowledge and religion.

(Garvin, Robinson.)

Philosophy 1 and Philosophy 2 survey different philosophical fields. Either may be taken first or alone. Students may not receive credit for more than two of the following courses: Philosophy 1: 2; 123; 124.

Phil. 2. Introduction to Philosophy (3)—Each semester.

A critical survey of representative philosophical beliefs concerning the nature and function of morality, government, education, and art.

(Garvin, Schlaretzki.)

Phil. 41. Elementary Logic and Semantics (3)—First semester.

An introductory study of logic and language, intended to help the student increase his ability to employ language with understanding and to reason correctly. Topics treated include: the uses and abuses of language, techniques for making sound inferences, and the logic of science.

(Schlaretzki.)

Phil. 52. Philosophy in Literature (3)—Second semester.

Reading and philosophical criticism of novels and dramas containing ideas significant for ethics, social policy, and religion.

(Schlaretzki.)

Phil. 53. Philosophy of Religion (3)—Second semester.

This course seeks to provide the student with the means by which he may approach intelligently the main problems of religious thought; the nature of religious experience, the forms of religious expression, the conflicting claims of religion and science, and the place of religion in the community and in the life of the individual.

(Garvin, Robinson.)

For Advanced Undergraduates and Graduates

Phil. 101. Ancient Philosophy (3)—First semester.

A history of Greek thought from its beginnings to the time of Justinian. The chief figures discussed: the Presocratic philosophers, Socrates, Plato, Aristotle, Epicurus, the Stoic philosophers and Plotinus.

(Robinson.)

Phil. 102. Modern Philosophy (3)—Second semester.

A history of philosophical thought in the West during the 16th, 17th, and 18th Cen-

turies. The chief figures discussed: Bacon, Galileo, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume and Kant. (Robinson.)

Phil. 111. Medieval Philosophy (3)—First semester.

A history of philosophical thought in the West from the close of the Classical period to the Renaissance. Based upon readings in the Stoics, early Christian writers, Neoplatonists, later Christian writers and Schoolmen. (Robinson.)

Phil. 114. Contemporary Movements in Philosophy (3)—First semester.

A survey of recent and present developments in philosophy. Attention will be given to such thinkers as James, Bergson, Russell, Dewey, and Whitehead and to such movements as Pragmatism, Idealism, Naturalism, Positivism, and Existentialism. Particular consideration will be paid to the bearing of these developments on contemporary problems of science, religion and society. (Garvin.)

Phil. 120. Oriental Philosophy (3)—Second semester.

A brief survey of Indian and Chinese philosophy. Discussion of Indian thought will center about the Rig-Veda, the Upanishads, the Buddhist philosophers, and the chief Hindu systems. Discussion of Chinese thought will center about Confucius, Lao-tse and their disciples, particular attention being given to the development of democratic ideals from Mencius to Sun Yat-sen. (Robinson.)

Phil. 121. American Philosophy (3)—First semester.

A survey of American philosophical thought from the 18th Century to the present. Special attention is given to Edwards, Jefferson, Emerson, Royce, Peirce, James, Dewey, and Santayana. (Schlaretzki.)

Phil. 123, 124. Philosophies Men Live By (2, 2)—First and second semesters. Phil. 123, extension (3). Designed as electives for students who wish to acquaint themselves with the field of philosophy. Phil. 123 not necessarily a prerequisite for Phil. 124. Students may not receive credit for more than two of the following courses: Philosophy 1; 2; 123; 124. (Staff.)

An exploration of the fundamental beliefs which determine what men make of their lives and of the world they live in. Each semester classic statements of these beliefs by great philosophers will be chosen for class discussion on the basis of their significance for the problems confronting modern man.

Phil. 125. The Great Philosophers (3)—Offered in Baltimore only.

A discussion of the ideas of the great Western philosophers, based on readings in their works. (Staff.)

Phil. 130. The Conflict of Ideals in Western Civilization (3)—Second semester.

A critical and constructive philosophical examination of the assumptions, goals, and methods of contemporary democracy, fascism, socialism, and communism, with special attention to the ideological conflict between the U. S. and Russia. (Schlaretzki.)

Phil. 140. Philosophical Bases of Educational Theories (3)—Second Semester.

A critical study of the foundations of major views regarding the proper ends of education and the implications of these views for educational practice. (Robinson.)

Phil. 151. Ethics (3)—First semester.

A critical study of the problems and theories of human conduct, aimed at developing such principles of ethical criticism as may be applied to contemporary personal and social problems and to the formulation of an ethical philosophy of life. (Garvin, Schlaretzki.)

Phil. 153. Philosophy of Art (3)—Second semester.

An inquiry into the nature and functions of art. The course will begin with an examination of the relations between art and imitation, art and craft, art and beauty, art and pleasure, art and form, art and expression, art and not-art, and good, bad, and great art, and conclude with a consideration of the uses of art, propagandistic, religious, escapist, and therapeutic. (Robinson.)

Phil. 154. Political and Social Philosophy (3)—Second semester.

An inquiry into the nature and functions of society and of the state. Attention is given to the major classical and contemporary theories, but the course is not primarily historical. The central problems: determination of the grounds of political obligation; reconciliation of the claims of personal freedom and social welfare. (Schlaretzki.)

Phil. 155. Logic (3)—Second semester.

A critical exposition of deductive logic. The course includes an examination and appraisal of Aristotelian logic and a systematic presentation of the foundations of modern symbolic logic. Consideration is given to the application of the techniques of logic in the organization of knowledge and in scientific method. This course does not presuppose Phil. 41, but forms a natural sequel to it. (Garvin, Schlaretzki.)

Phil. 156. Philosophy of Science (3)—First semester.

An inquiry into the relations of the sciences, the nature of observation, hypotheses, verification, experiment, measurement, scientific laws and theories, the basic concepts and presuppositions of science, and the relations of science to society. (Robinson.)

Phil. 191, 192, 193, 194. Topical Investigations (1-3)—Each semester.

Tutorial course. Independent study under individual guidance. Topics selected by students in conference with the department chairman. Restricted to advanced students with credit for at least 12 units of philosophy. (Staff.)

For Graduates

Graduate instruction in the Department of Philosophy is carried on mainly by independent investigation of special topics under individual supervision. Any of the courses listed below may be elected more than once. Course selections require the approval of the department chairman.

Phil. 201. Research in Philosophy (1-3)—Each semester.

Selected projects in historical research under individual guidance. (Staff.)

Phil. 203. Selected Problems in Philosophy (1-3)—Each semester.

Intensive study of selected topics in systematic philosophy under individual supervision. (Staff.)

Phil. 205. Seminar in the History of Philosophy (1-3)—First semester.

A special topic will be selected for each year, e.g., Plato, Aristotle, Kant, British Empiricists, Russell. (Staff.)

Phil. 206. Seminar in Problems of Philosophy (1-3)—Second semester.

A special topic will be selected each year, e.g., Symbolic Logic, Philosophical Analysis, Perceptual Knowledge. (Staff.)

PHYSICS

Professors Toll, Morgan, Myers; Visiting Professor Herman; Part-time Professors Brickwedde, de Launay, Kennard, Wangsness; Associate Professors Iskraut, Singer, R. Anderson; Assistant Professors Ferrell, Grant, Krumbein; Research Associates J. Anderson, Potts, Tredgold, Visscher.

Phys. 1. Elements of Physics: Mechanics, Heat, and Sound (3)—First semester. Two lectures, and one recitation a week. The first half of a survey course in general physics. *This course is for the general student and does not satisfy the requirements of the professional schools.* Prerequisite, successful passing of the qualifying examination in elementary mathematics. Lecture demonstration fee, \$3.00. (Morgan.)

Phys. 2. Elements of Physics: Magnetism, Electricity, and Optics (3)—Second semester. Two lectures and one recitation a week. The second half of a survey course in general physics. *This course is for the general student and does not satisfy the requirements of the professional schools.* Prerequisite, Phys. 1. Lecture demonstration fee, \$3.00. (Morgan.)

Phys. 10, 11. Fundamentals of Physics (4, 4)—First and second semesters. Three lectures, one recitation, and one two-hour laboratory period a week. A course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. **This course satisfies the minimum requirements of medical and dental schools.** Prerequisite, entrance credit in trigonometry or Math. 11 or concurrent enrollment in Math. 14 and 15. Lecture demonstration and laboratory fee, \$10.00 per semester. (Singer and Staff.)

Phys. 20. General Physics: Mechanics. Heat and Sound (5)—First and second semesters. Three lectures, two recitations and one two-hour laboratory period a week. The first half of a course in general physics. **Required of all students in the engineering curricula.** Math. 20 is to be taken concurrently. Lecture demonstration and laboratory fee, \$10.00.

(Anderson, R., Grant and Staff.)

Phys. 21. General Physics: Electricity, Magnetism and Optics (5)—First and second semesters. Three lectures, two recitations and one two-hour laboratory period a week. The second half of a course in general physics. **Required of all students in the engineering curricula.** Prerequisite, Phys. 20. Math 21 is to be taken concurrently. Lecture demonstration and laboratory fee, \$10.00.

(Anderson, R. Grant and Staff.)

Phys. 50, 51. Intermediate Mechanics (2, 2)—First and second semesters. Two lectures a week. Prerequisite, Phys. 11, or Phys. 21. (Morgan.)

Phys. 52. Heat (3)—First semester. Three lectures a week. Prerequisite, Phys. 11 or 21. Math. 20 is to be taken concurrently. (Krumbein.)

Phys. 53. Nuclear Physics and Radioactivity (3)—Second semester. Three lectures a week. Prerequisite, Phys. 11 or Phys. 21. (Ferrell.)

Phys. 54. Sound (3)—Second semester. Three lectures a week. Prerequisite, Phys. 11 or 21. Math. 21 is to be taken concurrently. (R. Anderson.)

Phys. 60. Intermediate Physics Experiments. Three hours laboratory work for each credit hour. One or more credits may be taken concurrently. Prerequisites, Phys. 11 or 21. Laboratory fee, \$10.00 per credit hour. (Krumbein.)

A. General Physics

For Advanced Undergraduates and Graduates

Phys. 100. Advanced Experiments. Three hours laboratory work for each credit hour. One or more credits may be taken concurrently. Prerequisites, Phys. 52 or 54. Laboratory fee, \$10.00 per credit hour. (Krumbein.)

Phys. 102. Optics (3)—Second semester. Three lectures a week. Prerequisites, Phys. 11 or 21 and Math. 21. (Krumbein.)

Phys. 104, 105. Electricity and Magnetism (3, 3)—Three lectures a week. Prerequisites, Phys. 11 or 21 and Math. 21. (Sreb.)

Phys. 106, 107. Theoretical Mechanics (3, 3)—First and second semesters. Three lectures a week. Prerequisites, Phys. 51 and Math. 21, or consent of instructor. (Tanaka.)

Phys. 118. Introduction to Modern Physics (3)—First semester. Three lectures a week. Prerequisites, Math. 21, and Phys. 11 or 12. (Myers.)

Phys. 119. Modern Physics (3)—Second semester. Prerequisite, Phys. 118. (Myers.)

Phys. 120. Nuclear Physics (4)—Four lectures a week. Prerequisite, Phys. 118 or equivalent. (Myers.)

Phys. 122. Properties of Matter (4)—Four lectures per week. Prerequisite, Phys. 118 or equivalent. (Myers.)

Phys. 126. Kinetic Theory of Gases (3)—Prerequisites, Phys. 107 and Math. 21, or equivalent.

Phys. 130, 131. Basic Concepts of Physics (2, 2)—Two lectures a week. First and second semester. Prerequisite: Junior standing. Lecture demonstration fee, \$2.00 per semester. (Anderson, J.)

A primarily descriptive course intended mainly for those students in the liberal arts who have not had any other course in Physics. This course does not satisfy the requirements of professional schools nor serve as a prerequisite or substitute for other physics courses. The main emphasis in the course will be on the concepts of physics, their evolution and their relation to other branches of human endeavor.

Phys. 150. Special Problems in Physics. Research or special study. Credit according to work done. Lab. fee, \$10.00 per credit hour when appropriate. Prerequisite, major in physics and consent of Instructor. (Faculty.)

For Graduates

Of the courses which follow, 200, 201, 212, and 213 are given every year; all others will be given according to the demand.

Phys. 200, 201. Introduction to Theoretical Physics (5, 5)—Five lectures a week, first and second semesters. Prerequisite, advanced standing in physics and mathematics. (Myers.)

Phys. 202, 203. Advanced Dynamics (2, 2)—Two lectures a week. Prerequisite, Phys. 200.

Phys. 204. Electrodynamics (4)—Four lectures a week, second semester. Prerequisite, Phys. 201. (Iskraut.)

Phys. 206. Physical Optics (3)—Prerequisite, Phys. 201. (Myers.)

Phys. 208, 209. Thermodynamics (2, 2)—Prerequisite, Phys. 201 or equivalent. (Schamp.)

Phys. 210, 211. Statistical Mechanics and the Kinetic Theory of Gases (2, 2)—Two lectures a week. Prerequisites, Phys. 112 and 201. (Montroll.)

Phys. 212, 213. Introduction to Quantum Mechanics (3, 3)—Three lectures a week, first and second semesters. Prerequisite, Phys. 201. (Ferrell.)

Phys. 214. Theory of Atomic Spectra (3)—Three lectures a week. Prerequisite, Phys. 201. (Anderson, R.)

Phys. 215. Theory of Molecular Spectra (3)—Three lectures a week. Prerequisite, Phys. 214. (Anderson, R.)

Phys. 216, 217. Molecular Physics (2, 2)—Two lectures a week. Prerequisite, Phys. 213. (Jansen.)

Phys. 222, 223. Boundary-Value Problems of Theoretical Physics (2, 2)—Prerequisite, Phys. 201. (de Launay.)

Phys. 230. Seminar—Seminars on various topics in advanced physics are held each semester, with the contents varied each year. One semester credit for each seminar each semester. (Faculty.)

Phys. 234, 235. Theoretical Nuclear Physics (3, 3)—Prerequisite, Phys. 213. (Visscher.)

Phys. 236. Theory of Relativity (3)—Prerequisite, Phys. 200. (Iskraut.)

Phys. 237. Relativistic Quantum Mechanics (3)—Three lectures per week. Prerequisite, Phys. 218. (Toll, Ferrell.)

Phys. 238. Quantum Theory—selected topics (3)—Prerequisites, Phys. 236 and 212. (Anderson, J.)

Phys. 242, 243. Theory of Solids (2, 2)—Two lectures a week. Prerequisite, Phys. 213. (Montroll.)

Phys. 248, 249. Special Topics in Modern Physics (2, 2)—Two lectures a week. Prerequisite, Calculus and consent of instructor. (Montroll.)

Phys. 250. Research—Credit according to work done. Laboratory fee, \$10.00 per credit hour. Prerequisite: An approved application for admission to candidacy or special permission of the Physics Department. (Faculty.)

B. Applied Physics

For Graduates and Advanced Undergraduates

Phys. 101. **Laboratory Arts.** Three hours laboratory a week for each credit hour. One or more credits may be taken concurrently. Laboratory fee, \$10.00 per credit hour. (Anderson, R., Hartnell.)

Phys. 103. **Applied Optics (3)**—First semester. Three lectures a week. Prerequisite, Phys. 102.

Phys. 108. **Physics of Electron Tubes (3)**—First semester. Three lectures a week. Prerequisite: Phys. 104 must be taken previously or concurrently. (Grant.)

Phys. 109. **Electronic Circuits (4)**—Second semester. Four lectures a week. Prerequisite: Phys. 105 must be taken previously or concurrently. (Grant.)

Phys. 110. **Applied Physics Laboratory (1, 2 or 3)**—Three hours laboratory work for each credit hour. One to three credits may be taken concurrently. Prerequisites, Phys. 52 or Phys. 54, and one credit in Phys. 100. (Krumbein.)

Phys. 111. **Physics Shop Techniques (1)**—One 3 hour laboratory per week. Laboratory fee, \$10.00. (Staff.)

Phys. 114, 115. **Introduction to Biophysics. (2, 2)**—First and second semesters. Two lectures a week. Prerequisite, intermediate Physics and Calculus. (Morowitz.)

Phys. 116, 117. **Fundamental Hydrodynamics (3, 3)**—Three lectures a week. Prerequisites, Phys. 107 and Math. 21. (Resler.)

Phys. 121. **Neutron Physics and Fission Reactors (4)**—Four lectures a week, second semester. Prerequisite: Phys. 120. (Shapiro.)

Phys. 151. **Special Problems in Applied Physics.** Research or special study in applied physics. Credit according to work done. Laboratory fee, \$10.00 per credit hour when appropriate. Prerequisite: Major in physics and consent of instructor. (Faculty.)

For Graduates

Phys. 218, 219. **X-Rays and Crystal Structure (3, 3)**—Three lectures a week. (Morgan.)

Phys. 220. **Application of X-Ray and Electron Diffraction Methods (2)**—Two laboratory periods a week. (Morgan.)

Phys. 224, 225. **Supersonic Aerodynamics and Compressible Flow (2, 2)**—Prerequisite, Phys. 201. (Pai.)

Phys. 226, 227. **Theoretical Hydrodynamics (3, 3)**—Prerequisite, Phys. 201. (Resler.)

Phys. 231. Applied Physics Seminar. (One semester credit for each seminar each semester.) (Imai.)

Phys. 232, 233. Hydromechanics Seminar (1, 1). (Kennard.)

Phys. 240, 241. Theory of Sound and Vibrations (3, 3)—Prerequisite, Phys. 201. (Resler.)

Phys. 245. Special Topics in Applied Physics. (2 credits each semester.) Two lectures a week. (Faculty.)

Phys. 246, 247. Special Topics in Fluid Dynamics, (2, 2)—Prerequisite, Advanced graduate standing and consent of the instructor. (Resler.)

Phys. 262, 263. Aerophysics (3, 3)—Prerequisite, consent of the instructor. (Resler.)

C. Special Physics Courses for High School Science Teachers.

The courses in this section were especially designed for high school teachers and are not applicable to B.S., M.S., or Ph.D. degrees in physics without special permission of the physics department. However, these courses can be included as part of a physics minor or as electives.

Phys. 118A. Atoms, Nuclei, and Stars (3)—Three lectures per week. (Herzfeld.)

Phys. 122A. Properties of Materials (3)—Three lectures per week. (Myers.)

Phys. 160A. Physics Problems (1, 2, 3)—Lectures and discussion sessions arranged. (Anderson, J.)

Phys. 170A. Applied Physics (3)—Three lectures per week. (Montroll.)

PSYCHOLOGY

Professors Andrews, Cofer, Hackman, Sprowls; Associate Professors Gustad, Ross; Assistant Professors Heintz, McGinnies, Magoon, Payne; Instructors Benimoff, Figler, Punroy, Wegner.

Psych. 1 and 4 are the underdepartmental requirements for all students majoring in Psychology.

Psych. 2 and 5 are presented as general surveys of an introductory nature and are organized primarily as elective courses for students in other departments.

Departmental requirements toward the B.A. degree in the Social Sciences: 1, 4, 106, 121, 145, 150; and 128 or 142; plus 9 additional hours in Psychology and/or other departments selected in conference with the student's major advisor.

Departmental requirements toward the B.S. degree in the Biological Sciences: 1, 4, 106, 136, 145, 150; and 180 or 181; plus 9 additional hours in Psychology and/or other departments selected in conference with the student's major advisor.

Psych 1. Introduction to Psychology (3)—First and second semesters. (McGinnies and Staff.)

A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

Psych. 2. Applied Psychology (3)—First and second semesters. Prerequisite, Psych. 1. (Staff.)

Application of research methods to basic human problems in business and industry, in the professions, and in other practical concerns of everyday life.

Psych. 4. Problems in Modern Psychology (3)—First and second semesters. Prerequisite, Psych. 1. (Staff.)

Primarily for students in the College of Arts and Sciences who major or minor in psychology. A systematic survey of the field of psychology with particular emphasis on methodology. Consideration of individual differences, motivation, sensory and motor processes, learning, emotional behavior and personality.

Psych. 5. Mental Hygiene (3)—First and second semesters. Prerequisite, Psych. 1. (Magoon.)

The more common deviations of personality; typical methods of adjustment.

For Advanced Undergraduates and Graduates

Graduate credit will be assigned only for students certified by the Department of Psychology as qualified for graduate standing.

Psych. 106. Statistical Methods in Psychology (3)—First and second semesters. Prerequisite, Psych. 1. (Hackman.)

A basic introduction to quantitative methods used in psychological research; measures of central tendency, of spread, and of correlation. Majors in Psychology should take this course in the junior year.

Psych. 110. Educational Psychology (3)—Second semester. Prerequisite, Psych. 1 or equivalent. (Heintz.)

Researches on fundamental psychological problems encountered in education. Measurement and significance of individual differences; learning, motivation, transfer of training, and the educational implications of theories of intelligence.

Psych. 121. Social Psychology (3)—First and second semesters. Prerequisite, Psych. 1. (Heintz, McGinnies, Wegner.)

Personality and behavior as influenced by culture and interpersonal relations. Social influences on motivation, learning, memory, and perception. Attitudes, public opinion, propaganda, language and communication, leadership, ethnic differences, and group processes.

Psych. 122. Advanced Social Psychology (3)—Second semester. Prerequisite, Psych. 121 and consent of instructor. (McGinnies.)

A systematic review of researches and points of view in regard to major problems in the field of social psychology.

Psych. 125. Child Psychology (3)—First semester. Prerequisite, Psych. 1. (Heintz.)

Behavioral analysis of normal development and normal socialization of the growing child. Leading theories of child nature and care, and their implications.

Psych. 126. Developmental Psychology (3)—First semester. Prerequisite, Psych. 1. (Heintz.)

Genetic approach to human motivation and accomplishment. Research on simpler

animal forms, the child, the adolescent and the adult in terms of the development of normal adult behavior.

Psych. 128. Human Motivation (3)—First and second semesters. Prerequisite, Psych. 121. (Cofer.)

Review of research literature dealing with determinants of human performance, together with consideration of the major theoretical contributions in this area.

Psych. 129. Psychological Aspects of Literature (3)—First and second semesters. Prerequisite, Psych. 131 or permission of instructor. (Sprowls.)

The familiar rubrics of dynamic psychology are studied in the light of literary products. Emphasizes the significance of psycho-social forces as functional determinants of well known literary personalities.

Psych. 131. Abnormal Psychology (3)—First and second semesters. Prerequisite, three courses in Psychology. Two lectures, one clinic. (Magoon, Pumroy.)

The nature, occurrence, and causes of marked psychological abnormalities, with emphasis on clinical rather than theoretical aspects.

Psych. 136. Applied Experimental Psychology (3)—Second semester. Prerequisite, Psych. 1 or consent of instructor. (Ross.)

A study of basic human factors involved in the design and operation of machinery and equipment. Organized for students in engineering, industrial psychology, and the biological sciences.

Psych. 140. Psychological Problems in Advertising (3)—Second semester. Prerequisite, Psych. 1. (Hackman.)

Psychological problems that arise in connection with the production and testing of advertising; techniques employed in attacking these problems through research.

Psych. 142. Techniques of Interrogation (3)—First and second semesters. Prerequisite, Psych. 121. (Hackman.)

The interview, the questionnaire, and other methods of obtaining evidence on human attitudes and reactions, as viewed in the light of modern research evidence.

Psych. 145. Introduction to Experimental Psychology (4)—First and second semester. One lecture and two two-hour laboratory periods per week. Prerequisite, Psych. 4. Laboratory fee per semester, \$4.00. (Ross.)

Primarily for students who major or minor in psychology. A systematic survey of the laboratory methods and techniques as applied to human behavior. Emphasis is placed on individual and group participation in experiments, use of data, and preparation of reports.

Psych. 150. Tests and Measurements (3)—Second semester. Prerequisite, Psych. 106. Laboratory fee, \$4.00. (Gustad, Magoon.)

Critical survey of predictors used in vocational and educational orientation and in industrial practice, with emphasis on development and standardization. Laboratory practice in the use and interpretation of test and non-test predictors.

Psych. 161. Industrial Psychology (3)—Second semester. Prerequisite, 6 hours in Psychology.

A survey course, intended for those who plan to enter some phase of personnel work, but who do not plan to undertake graduate study.

Psych. 167. Psychological Problems in Aviation (3)—First semester. Prerequisite, Psych. 1. (Payne.)

Techniques in selection and training of aircraft pilots; researches on special conditions encountered in flight.

Psych. 180. Physiological Psychology (3)—Second semester. Prerequisite, Psych. 145. (Andrews, Ross.)

An introduction to research on the physiological bases of human behavior, including considerations of sensory phenomena, motor coordination, emotion, drives, and the neurological basis of learning.

Psych. 181. Animal Behavior (3)—(Same as Zool. 181.)—Second semester. Prerequisite, consent of instructor. (Ross.)

A study of animal behavior, including considerations of social interactions, learning, sensory processes, motivation, and experimental methods, with a major emphasis on mammals.

Psych. 191, 192. Advanced General Psychology (3, 3)—First and second semesters. Prerequisite, 15 hours of Psychology including Psych. 145 and consent of instructor. (Ross, Cofer.)

A systematic review of the more fundamental investigations upon which modern psychology is based. Intended primarily for exceptional senior majors and for graduate students.

Psych. 194. Independent Study in Psychology (1-3)—First and second semesters. Prerequisites, senior standing and written consent of individual faculty supervisor. (Staff.)

Integrated reading under direction, leading to the preparation of an adequately documented report on a special topic.

Psych. 195. Minor Problems in Psychology (1-3)—First and second semesters. Prerequisite, written consent of individual faculty supervisor. (Staff.)

An individualized course designed to allow the student to pursue a specialized topic or research project under supervision; also designed to allow groups of students to work under supervision in a topical area not included in the courses offered at the graduate level.

Psych. 198. Proseminar: Professional Aspects of Psychological Science (2)—Second semester. Prerequisites, senior standing and consent of faculty advisor. (Staff.)

Survey of professional problems in Psychology, including considerations of contemporary developments, professional ethics, literature resources, formulation of critical research problems, and discussion of the major institutions requiring psychological services.

For Graduate Students

(All the following courses require consent of the instructor.)

Psych. 202. Seminar in Advanced Experimental Psychology (2). (Andrews.)

Psych. 203, 204. Graduate Seminar (2, 2)—First and second semesters. (Staff.)

Psych. 205, 206. Historical Viewpoints and Current Theories in Psychology (3, 3)—First and second semesters. (Hackman, Cofer.)

Psych. 211. Job Analysis and Evaluation (3)—First semester.

- Psych. 220. **Psychological Concepts in Mental Health (2)**—Second semester.
(Gustad, Magoon.)
- Psych. 221. **Seminar in Counseling Psychology (3)**
- Psych. 222. **Seminar in Clinical Psychology (2)**—Prerequisites, Psych. 150,
220. (Magoon.)
- Psych. 223. **Diagnosis and Correction of Reading Difficulties (3)**—Second
semester. Prerequisites, Psych. 150, 220. (Magoon, Benimoff.)
- Psych. 224. **Advanced Procedures in Clinical and Counseling Psychology
(2).**
- Psych. 225. **Practicum in Counseling and Clinical Procedures (1-3)**—First
and second semesters. Prerequisite, Psych. 220. (Gustad, Magoon.)
- Psych. 230. **Determinants of Human Efficiency (3)**—Second semester.
(Ross.)
- Psych. 231. **Training Procedures in Industry (3)**—Second semester.
- Psych. 233. **Social Organization in Industry (3)**—First semester.
- Psych. 235. **Psychological Aspects of Management-Union Relations (3)**—
Second semester.
- Psych. 240. **Interview and Questionnaire Techniques (3)**—Second semester.
(Hackman.)
- Psych. 241. **Mass Communication and Persuasion (3)**—Second semester.
(McGinnies.)
- Psych. 242. **Seminar in Social Psychology (3)**—Second semester.
(McGinnies.)
- Current theories and problems in Social Psychology will be examined critically, with
emphasis placed upon the experimental approach to social psychological questions.
- Psych. 250. **Mental Test Theory (2)**—First semester. Prerequisite, Psych.
253. (Gustad.)
- Psych. 251. **Development of Predictors (3)**—First semester. Prerequisite,
Psych. 253. (Andrews.)
- Psych. 252, 253. **Advanced Statistics (3, 3)**—First and second semesters.
Prerequisite, Psych. 106. (Hackman, Andrews.)
- Psych. 255. **Seminar in Psychometric Theory (2)**—Prerequisite, Psych. 253.
(Andrews, Hackman.)
- Psych. 260. **Individual Tests (3)**—Laboratory fee, \$4.00. Prerequisite,
Psych. 150. (Magoon.)
- Psych. 262. **Appraisal of Personality (3)**—Prerequisite, Psych. 150.
(Cofer.)
- Psych. 264. **Projective Tests (3)**—Second semester. Laboratory fee, \$4.00.
Prerequisite, Psych. 260. (Cofer.)
- Psych. 265. **Advanced Developmental Psychology (2).**

Psych. 266, 267. Theories of Personality and Motivation (3, 3)—First and second semesters. (Cofer.)

Psych. 270. Advanced Abnormal Psychology (3)—Prerequisite, Psych. 131. (Cofer, Gustad.)

Psych. 271. Special Testing of Disabilities (3)—Second semester. Prerequisite, Psych. 260. (Magoon.)

Psych. 272, 273. Individual Clinical Diagnosis (3, 3)—Prerequisite, Psych. 260. (Gustad.)

Psych. 280. Advanced Psychophysiology (2)—First semester. (Andrews, Ross.)

Psych. 288, 289. Special Research Problems (1-3)—First and second semesters. (Staff.)

Psych. 290, 291. Research for Thesis (Credit arranged)—First and second semesters. (Staff.)

SOCIOLOGY

Professors Hoffsommer, Lejins; Associate Professors Melvin, Shankweiler; Assistant Professors Anderson, Coates, Fitzgerald, Rohrer, Roth, Watson; Instructors Cussler, Felton, Franz, Hirzel, Lawson, Motz, Sampson, Scott, Schmidt, Tomlin.

Sociology 1 or its equivalent is prerequisite to all other courses in sociology.

Sociology 2, 183, 186 and 196 or their equivalents are required for an undergraduate major in sociology.

Soc. 1. Sociology of American Life (3)—First and second semesters. Summer School.

Sociological analysis of the American social structure; metropolitan, small town, and rural communities; population distribution, composition and change; social organization. (Hoffsommer and Staff.)

Soc. 2. Principles of Sociology (3)—First and second semesters. Prerequisite, Soc. 1 or sophomore standing.

The basic forms of human association and interaction; social processes; institutions; culture; human nature and personality. (Melvin, Cussler.)

Soc. 5. Anthropology (3)—First semester. Summer School (2). Prerequisite, Soc. 1.

Introduction to anthropology; origins of man; development and transmission of culture; backgrounds of human institutions. (Anderson.)

Soc. 13. Rural Sociology (3)—First semester. Prerequisite, Soc. 1.

Rural life in America; its people, social organization, culture patterns, and problems. (Hoffsommer, Coates.)

Soc. 14. Urban Sociology (3)—Second semester. Summer School (2). Prerequisite, Soc. 1.

Urban growth and expansion; characteristics of city populations; urban institutional and personality patterns; relations of city and country. (Schmidt.)

Soc. 51. Social Pathology (3)—First semester. Summer School (2). Prerequisite, Soc. 1 and sophomore standing.

Personal-social disorganization and maladjustment; physical and mental handicaps; economic inadequacies; programs of treatment and control. (Shankweiler, Franz.)

Soc. 52. Criminology (3)—Second semester. Prerequisite, Soc. 1 and sophomore standing.

Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction, and incapacitation; prevention of crime. (Lejins.)

Soc. 62. Social Institutions (3)—Second semester. Prerequisite, Soc. 1 and sophomore standing.

Nature and function of social institutions; the perpetuation of behavior through customs and social norms; typical contemporary American institutions. (Melvin.)

Soc. 64. Courtship and Marriage (3)—First and second semesters. Summer School (2). Prerequisite, Soc. 1 and sophomore standing.

A sociological study of courtship and marriage including consideration of physiological and psychological factors. Inter-cultural comparisons and practical considerations. Designed primarily for students in the lower division. (Shankweiler.)

For Advanced Undergraduates and Graduates

Sociology 1 or its equivalent and junior standing are prerequisite to courses numbered 100 to 199.

Soc. 105. Cultural Anthropology (3)—Second semester. Summer School (2).

A survey of the simpler cultures of the world, with attention to historical processes and the application of anthropological theory to the modern situation. (Anderson.)

Soc. 112. Rural-Urban Relations (3)—First semester. Summer School (2).

The ecology of population and the forces making for change in rural and urban life; migration, decentralization and regionalism as methods of solving individual and national problems. (Melvin.)

Soc. 113. The Rural Community (3)—Second semester.

A detailed study of rural life with emphasis on levels of living, the family, school, and church and organizational activities in the fields of health, recreation, welfare, and planning. (Hoffsommer, Coates.)

Soc. 114. The City (3)—First semester. Summer School (2).

The rise of urban civilization and metropolitan regions; ecological process and structure; the city as a center of dominance; social problems, control and planning. (Schmidt.)

Soc. 115. Industrial Sociology (3)—First and second semesters. Summer School (2).

The sociology of human relations in American industry and business. Complex industrial and business organizations as social systems. Social relationships within and between industry, business, community, and society. (Coates.)

Soc. 118. Community Organization (3)—First semester. Summer School (2).

Community organization and its relation to social welfare; analysis of community

needs and resources; health, housing, recreation; community centers; neighborhood projects. (Roth.)

Soc. 121. Population (3)—First semester. Summer School (2).

Population distribution and growth in the United States and the world; population problems and policies. (Hirzel.)

Soc. 122. Population (3)—Second semester.

Trends in fertility and mortality, migrations, population estimates and the resulting problems and policies. (Hirzel.)

Soc. 123. Ethnic Minorities (3)—First semester. Summer School (2).

Basic social processes in the relations of ethnic groups within the state; immigration groups and the Negro in the United States; ethnic minorities in Europe. (Lejins.)

Soc. 124. The Culture of the American Indian (3)—Second semester.

A study of type cultures; cultural processes; and the effects of acculturation on selected tribes of Indians in the Americas. (Anderson.)

Soc. 125. Cultural History of the Negro (3)—First semester.

The cultures of Africa south of the Sahara and the cultural adjustments of the Negro in North and South America.

Soc. 131. Introduction to Social Service (3)—First and second semesters.

General survey of the field of social-welfare activities; historical development; growth, functions, and specialization of agencies and services, private and public. (Roth.)

Soc. 136. Sociology of Religion (3)—First semester. Summer School (2).

Varieties and sources of religious experience. Religious institutions and the role of religion in social life. (Anderson.)

Soc. 141. Sociology of Personality (3)—First semester. Summer School (2).

Development of human nature and personality in contemporary social life; processes of socialization; attitudes, individual differences, and social behavior. (Motz.)

Soc. 144. Collective Behavior (3)—Second semester.

Social interaction in mass behavior; communication processes; structure and functioning of crowds, strikes, audiences, mass movements, and the public. (Cussler.)

Soc. 145. Social Control (3)—First semester.

Forms, mechanisms, and techniques of group influence on human behavior; problems of social control in contemporary society. (Motz.)

Soc. 147. Sociology of Law (3)—First semester.

Law as a form of social control; interrelation between legal and other conduct norms as to their content, sanctions, and methods of securing conformity; law as an integral part of the culture of the group; factors and processes operative in the formation of legal norms as determinants of human behavior. (Lejins.)

Soc. 153. Juvenile Delinquency (3)—First semester. Summer School (2).

Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention. (Lejins.)

Soc. 154. Crime and Delinquency Prevention (3)—Second semester. Prerequisite, Soc. 52 or Soc. 153 or consent of instructor. (Offered in alternate years with Soc. 156. (Lejins.)

Mobilization of community resources for the prevention of crime and delinquency; area programs and projects.

Soc. 156. Institutional Treatment of Crimninals and Delinquents (3)—Second semester. Summer School (2). Prerequisite, Soc 52 or Soc. 153 or consent of instructor. (Offered in alternate years with Soc. 154.)

Organization and functions of penal and correctional institutions for adults and juveniles. (Lejins.)

Soc. 160. Interviewing in Social Work (1½). Summer School only.

Soc. 161. The Sociology of War (3)—First semester. Summer School (2).

The origin and development of armed forces as institutions; the social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilization. (Coates.)

Soc. 162. Basic Principles and Current Practice in Public Welfare (3). Summer School only. (Roth.)

Soc. 163. Attitude and Behavior Problems in Public School Work (1½). Summer School only. (Roth.)

Soc. 164. The Family and Society (3)—Second semester. Summer School (2). Prerequisite, Soc. 1 and Soc. 64 or equivalent.

Study of the family as a social institution; its biological and cultural foundations, historic development, changing structure and function: the interactions of marriage and parenthood, disorganizing and reorganizing factors in present day trends. (Shankweller.)

Soc. 171. Family and Child Welfare (3)—First semester. Summer School (2).

Programs of family and child welfare agencies; social services to families and children; child placement; foster families. (Roth.)

Soc. 173. Social Security (3)—First semester.

The social security program in the United States; public assistance; social insurance. (Staff.)

Soc. 174. Public Welfare (3)—Second semester.

Development and organization of the public welfare movement in the United States; social legislation; interrelations of federal, state, and local agencies and institutions. (Roth.)

Soc. 183. Social Statistics (3)—First and second semesters.

Collection, statistical analysis, and interpretation of social data; problems of quantitative measurement of social phenomena. (Schmidt.)

Soc. 185. Advanced Social Statistics (3)—Second semester. Prerequisite, Soc. 183, or equivalent.

Provides refined statistical research methods for advanced students in the social sciences. Sampling theory, specialized correlation technique, tests of significance, and other procedures. (Schmidt.)

Soc. 186. Sociological Theory (3)—First and second semesters.

Development of the science of sociology; historical backgrounds; recent theories of society. (Melvin.)

Soc. 191. Social Field Training (1-3).—First and second semesters. Prerequisites: For social work field training, Soc. 131; for crime control field training, Soc. 52 and 153. Enrollment restricted to available placements.

Supervised field training in public and private social agencies. The student will select his particular area of interest and be responsible to an agency for a definite program of in-service training. Group meetings, individual conferences, and written progress reports will be required part of the course. (Lejins, Roth.)

Soc. 196. Senior Seminar (3)—Second semester. Required or open only to senior majors in sociology.

Scope, fields, and methods of sociology; practical applications of sociological knowledge. Individual study and reports. (Hoffsommer.)

For Graduates

Prerequisites for entrance upon graduate study leading to an advanced degree with a major in sociology: either (1) an undergraduate major (totaling at least 24 semester hours) in sociology or (2) 12 semester hours of sociology (including 6 semester hours of advanced courses) and 12 additional hours of comparable work in economics, political science, or psychology. Reasonable substitutes for these prerequisites may be accepted in the case of students majoring in other departments who desire a graduate minor or several courses in sociology.

With the exception of Soc. 201, 285, and 291, individual courses numbered 200 to 299 will ordinarily be offered in alternate years.

Soc. 201. Methods of Social Research (3)—First semester.

Selection and formulation of research projects; methods and techniques of sociological investigation and analysis. Required of graduate majors in sociology. (Hoffsommer.)

Soc. 215. Community Studies (3)—First semester.

Intensive study of the factors affecting community development and growth, social structure, social stratification, and social institutions; analysis of particular communities. (Hoffsommer.)

Soc. 221. Population and Society (3)—Second semester.

Selected problems in the field of population; quantitative and qualitative aspects; American and world problems. (Hirzel.)

Soc. 224. Race and Culture (3)—Second semester.

Race and culture in contemporary society; mobility and the social effects of race and culture contacts and intermixture. (Anderson.)

Soc. 230. Comparative Sociology (3)—Second semester.

Comparison of the social institutions, organizations, patterns of collective behavior, and art manifestations of societal values of various countries. (Melvin.)

Soc. 241. Personality and Social Structure (3)—Second semester.

Comparative analysis of the development of human nature, personality, and social traits in select social structures. (Staff.)

Soc. 246. Public Opinion and Propaganda (3)—Second semester.

Processes involved in the formation of mass attitudes; agencies and techniques of communication; quantitative measurement of public opinion. (Staff.)

Soc. 253. Advanced Criminology (3)—First semester.

Survey of the principal issues in contemporary criminological theory and research.
(Lejins.)

Soc. 254. Seminar: Criminology (3)—Second semester.
Selected problems in criminology. (Lejins.)

Soc. 255. Seminar: Juvenile Delinquency (3)—First semester.
Selected problems in the field of juvenile delinquency. (Lejins.)

Soc. 256. Crime and Delinquency as a Community Problem (3)—Second semester.

An intensive study of selected problems in adult crime and juvenile delinquency in Maryland. (Lejins.)

Soc. 257. Social Change and Social Policy (3)—First semester.

Emergence and development of social policy as related to social change; policy-making factors in social welfare and social legislation. (Staff.)

Soc. 262. Family Studies (3)—Second semester.

Case studies of family situations; statistical studies of family trends, methods of investigation and analysis. (Shankweiler.)

Soc. 264. The Sociology of Mental Health (3)—First semester.

A study of the sociological factors that condition mental health together with an appraisal of the group dynamics of its preservation. (Melvin.)

Soc. 282. Sociological Methodology (3)—Second semester.

Logic and method of sociology in relation to the general theory of scientific method; principal issues and points of view. (Staff.)

Soc. 285. Seminar: Sociological Theory (3)—First semester.

Critical and comparative study of contemporary European and American theories of society. (Melvin.)

Soc. 290. Research in Sociology (Credit to be determined)—First and second semesters. (Thesis Advisor.)

Soc. 291. Special Social Problems (Credit to be determined)—First and second semesters.

Individual research on selected problems. (Staff.)

SPEECH AND DRAMATIC ART

Associate Professor Strausbaugh; Assistant Professors Batka, Hendricks, Linkow, Mayer, Niemeyer, Provinsen; Instructors Bedwell, Byrd, Conlon, Craven, Dillavou, Gillis, Pugliese, Starcher; Jr. Instructors Bosley, Elkins, Gow, Meima, Monroe, Smith; Lecturers Butler, Causey, Lore, Shutts.

Speech 1, 2. Public Speaking (2, 2)—First and second semesters. Prerequisite for advanced speech courses. Speech I prerequisite for Speech II.

The preparation and delivery of short original speeches; outside readings; reports, etc. It is recommended that this course be taken during the freshman year. Laboratory fee \$1.00 each semester. (Strausbaugh and Staff.)

Speech Clinic—No credit.

Remedial work in minor speech defects. The work of the clinic is conducted in individual conferences and in small group meetings. Hours arranged by consultation with the respective speech instructor. (Craven and Staff.)

Speech 3. Fundamentals of General American Speech (3)—Each semester.

Training in auditory discrimination of speech sounds, rhythms and inflections of general American speech. Analysis of the physiological bases of speech production and the phonetic elements of speech reception. This course is required of speech majors, and recommended for foreign students. (Hendricks.)

Speech 4. Voice and Diction (3)—First and Second semesters.

Emphasis upon the improvement of voice, articulation, and phonation. May be taken concurrently with Speech 1, 2. (Mayer and Staff.)

Speech 5, 6. Advanced Public Speaking (2, 2)—First and second semesters. Prerequisite, Speech 1, 2, or consent of the instructor.

Advanced work on basis of Speech 1, 2. Special emphasis is placed upon speaking situations the students will face in their respective vocations. (Starcher and Staff.)

Speech 7. Public Speaking (2)—Each semester. The preparation and delivery of speeches on technical and general subjects. Laboratory fee, \$1.00. (Linkow and Staff.)**Speech 8, 9. Acting (3, 3)**—First and second semesters. Admission by consent of instructor.

Basic principles of histrionic practice. (Niemeyer.)

Speech 10. Group Discussion (2)—First and second semesters.

A study of the principles, methods, and types of discussion, and their application in the discussion of contemporary problems. (Linkow and Staff.)

Speech 11, 12. Debate (2, 2)—First and second semesters.

A study of the principles of argument, analysis, evidence, reasoning, fallacies, briefing, and delivery, together with their application in public speaking. (Gillis.)

Speech 13. Oral Interpretation (3)—First semester.

The oral interpretation of literature and the practical training of students in the art of reading. (Provensen.)

Speech 14. Stagecraft (3)—First semester.

Fundamentals of technical production. Emphasis on construction of scenery. Laboratory fee, \$2.00. (Byrd.)

Speech 15. Stagecraft (3)—Second semester.

Technical production. Emphasis on stage lighting. Prerequisite, Speech 14. Laboratory fee, \$2.00. (Byrd.)

Speech 16. Introduction to the Theatre (3)—First and second semesters.

A general survey of the fields of the theatre. Prerequisite for all courses in Drama. (Mayer.)

Speech 17. Make-up (2)—Second semester. One lecture and one laboratory a week.

A lecture-laboratory course in the theory and practice of stage make-up, covering basic requirements as to age, type, character, race, and period. Laboratory fee, \$2.00. (Byrd.)

Speech 18, 19. Introductory Speech (1, 1)—First and second semesters.

This course is designed to give those students practice in public speaking who cannot schedule Speech 1, 2. Speech 18 prerequisite for Speech 19. Laboratory fee \$1.00 for each semester. (Provensen and Staff.)

Speech 22. Introduction to Radio and Television (3)—First and second semesters. Prerequisite for all courses in Radio.

The development, scope, and influence of American broadcasting and telecasting, including visits to local radio and television stations, with guest lecturers from Radio Station WTOP and Television Station WTOP-TV. (Batka.)

Speech 23. Parliamentary Law (1)—First and second semesters.

A study of the principles and application of parliamentary law as applied to all types of meetings. Thorough training in the use of Robert's Rules of Order. (Strausbaugh.)

For Advanced Undergraduates and Graduates

Speech 102. Radio Production (3)—Second Semester.

A study of the multiple problems facing the producer. Special emphasis is given to acoustic setup, casting, "miking", timing, cutting, and the coordination of personnel factors involved in the production of radio programs. Admission by consent of instructor. Laboratory fee, \$2.00. (Batka.)

Speech 105. Speech-Handicapped School Children (3)—First and second semesters. Admission by consent of Instructor.

The occurrence, identification and treatment of speech handicaps in the classroom. An introduction to speech pathology. (Craven.)

Speech. 106. Clinical Practice (1 to 5 credits, up to 9)—Each semester and summer. Prerequisite: Speech 105.

Clinical practice in various methods of corrective procedures with various types of speech cases in the University clinic, veterans hospitals, and the public schools. May be taken for 1-5 credit hours per semester. May be repeated for a total of 9 semester hours credit. (Craven.)

Speech 107. Advanced Oral Interpretation (3)—Second semester. Prerequisite, Speech 13.

Emphasis upon the longer reading. Program planning. (Provensen.)

Speech 108. Public Speaking (2)—Second semester. Limited to Junior Engineers. Prerequisite, Speech 7.

Continuation of Speech 7 with emphasis upon engineering projects that fall within student's own experience. (Linkow.)

Speech 109. Speech and Language Development of Children (3)—Second semester. Admission by consent of instructor.

An analysis of normal and abnormal processes of speech and language development in children. (Hendricks.)

Speech 111. Seminar (3)—First and second semesters. Required of speech majors. Present-day speech research. (Strausbaugh.)

Speech 112. Phonetics (3)—First semester.

Training in the recognition and production of the sounds of spoken English, with an analysis of their formation. Practice in transcription. Mastery of the international phonetic alphabet. (Hendricks.)

Speech 113. Play Production (3)—Second semester.

Development of procedure followed by the director in preparing plays for public performance. (Fugliese.)

Speech 115. Radio in Retailing (3)—First semester. Limited to students in the College of Home Economics. Prerequisites, Speech 1, 2. English 1, 2. Junior standing. Laboratory fee \$2.00.

Writing and production of promotional programs for the merchandising of wearing apparel and housefurnishings. Collaboration with Washington and Baltimore radio stations and retail stores. (Batka.)

Speech 116. Radio Announcing (3)—Second semester. Prerequisite, Speech 4.

The theory and application of all types of announcing. Laboratory fee, \$2.00. (Batka.)

Speech 117. Radio Continuity Writing (3)—First semester.

A study of the principles and methods of writing for broadcasting. Application will be made in the writing of the general types of continuity. Admission by consent of instructor. (Bedwell.)

Speech 118. Advanced Radio Writing (3)—Second semester. Prerequisite, Speech 117.

Advanced work with emphasis upon the dramatic form. Admission by consent of instructor. (Bedwell.)

Speech 119. Radio Acting (3)—Second semester.

A workshop course designed to give the student practice in radio acting. Admission by consent of instructor. (Pugliese.)

Speech 120. Speech Pathology (3)—First semester. Prerequisite: Speech 105.

A continuation of Speech 105, with emphasis on the causes and treatment of organic speech disorders. (Hendricks.)

Speech 122, 123. Radio Workshop (3, 3)—First and second semesters.

A laboratory course dealing with all phases of producing a radio program. Admission by consent of instructor. Laboratory fee \$2.00 each semester. (Batka.)

Speech 124, 125. American Public Address (3, 3)—First and second semesters.

The first semester covers the period from Colonial times to the Civil War period. The second semester covers from the Civil War period through the contemporary period. (Staff.)

Speech 126. Semantic Aspects of Speech in Human Relations (3)—Second semester.

An analysis of speech and language habits from the standpoint of General Semantics. (Hendricks.)

Speech 127, 128. Military Speech and Commands (2, 2)—First and second semesters. Limited to students in the College of Military Science and Tactics.

The preparation and delivery of lectures dealing with military subjects. Effective execution of field orders, commands, etc. Extensive use of voice recordings. (Pugliese.)

Speech 129, 130. Play Directing (2, 2)—Admission by consent of instructor.

A lecture-laboratory course dealing with the fundamentals of script cutting, pacing, movement, blocking, and rehearsal routine as applied to the directing of plays. (Nemeyer.)

Speech 131. History of the Theatre (3)—First semester.

A survey of dramatic production from early origins to 1800. (Nemeyer.)

Speech 132. History of the Theatre (3)—Second semester.

A survey of dramatic production from 1800 to the present.

(Niemeyer.)

Speech 133. Staff Reports, Briefings, and Visual Aids (3)—Second semester. Limited to the students in the College of Military Science. Prerequisites, Speech 5 and 6.

Lecture and laboratory course dealing with the techniques used in military briefings, staff reports and the use of visual aids.

(Linkow.)

Speech 135. Introduction to Audiology (3)—Second semester. Study of the basic problems of deafness among children and adults.

(Craven.)

Speech 136. Principles of Speech Therapy (3)—Prerequisite: Speech. 120.

Differential diagnosis of speech and language handicaps and the application of psychological principles of learning, motivation and adjustment in the treatment of speech disorders.

(Hendricks.)

Speech 137. Experimental Phonetics (3)—Prerequisite: Speech 112.

The application of experimental methods in the quantitative analysis of the phonetic elements of speech.

(Hendricks.)

Speech 138. Methods and Materials in Speech Correction (3)—Prerequisite, Speech 120 or the equivalent.

The design and use of methods and materials for diagnosis, measurement, and retraining of the speech-handicapped.

(Craven.)

Speech 139. Theatre Workshop (3)—Prerequisite, Speech 8 or Speech 14. Given each semester.

A laboratory course designed to provide the student with practical experience in all phases of theatre production.

(Strausbaugh.)

Speech 140. Principles of TV Production (3)—First semester. Prerequisite, Speech 22.

A study of the theory, methods, techniques and problems of television direction and production on a local and national level, including an examination of the TV camera, scenery, film, and lighting.

(Bedwell.)

For Graduates

The Department maintains a reciprocal agreement with Walter Reed General Hospital whereby clinical practice may be obtained at the Army Audiology and Speech Correction Center, Forest Glen, Maryland, under the direction of James P. Albrite, M.D., Director.

Speech 200. Thesis (3, 6)—Credit in proportion to work done and results accomplished.

(Hendricks.)

Speech 201. Special Problems (2, 4)—Arranged.

(Hendricks.)

Speech 210. Anatomy and Physiology of Speech and Hearing (3).

A study of the anatomy and physiology of the auditory and speech mechanisms.

(Staff.)

Speech 211. Advanced Clinical Practice (3).

A comprehensive survey of the entire field of present-day clinical practice.

(Staff.)

Speech 212. Advanced Speech Pathology (3)

Etiology and therapy for organic and functional speech disorders.

(Lore.)

Speech 213. Speech Problems of the Hard of Hearing (3).

Correction of abnormal speech habits and instruction in speech conservation.

(Lore.)

Speech. 214. Clinical Audiometry (3).

Testing of auditory acuity with pure tones and speech.

(Shutts.)

Speech 215. Auditory Training (3).

Orientation and adjustment of patients in the use of hearing aids.

(Causey.)

Speech. 216. Speech Reading (3).

A course of training designed to present the fundamentals of speech reading.

(Causey.)

Speech 217. Selection of Prosthetic Appliances for the Acoustically Handicapped (3).

A laboratory course in modern methods of utilizing electronic hearing aids.

(Shutts.)

Speech 218. Problems of Hearing and Deafness (3).

The social, emotional, and vocational adjustment of the individual with a hearing impairment.

(Butler.)

Speech 219. Speech Disorders of the Brain-Injured (3).

Methods of evaluation and treatment of children and adults who have suffered injury to brain tissue, with subsequent damage to speech and language processes.

(Hendricks.)

ZOOLOGY

Professors Burhoe and Wharton; Lecturers Baker, Camin, Hasel, Reynolds, Schultz, and Strandmann; Associate Professors Anastos and Littleford; Assistant Professors Allen, Benarde, Brown, Foreman, Grollman, Livingston, Rammand, and Winn.

Zool. 1. General Zoology (4)—First and second semesters. Pharmacy and summer School. Two lectures and two two-hour laboratory periods a week. Zoology 1 and Zoology 2 satisfy the freshman premedical requirements in general biology.

This course, which is cultural and practical in its aim, deals with the basic principles of animal life. Laboratory fee, \$8.00.

(Wharton.)

Zool. 2. Advanced General Zoology (4)—Second semester. Two lectures and two two-hour laboratory periods a week. Prerequisite, Zoology 1 or Zoology 16.

A study of the anatomy, classifications, and life histories of representative animals, invertebrates and vertebrates. Laboratory fee, \$8.00.

(Allen.)

Zool. 4. The Animal Kingdom (3)—Second semester. Pharmacy. Two lectures and one laboratory period a week.

(Baltimore Campus.)

A survey of the animal kingdom with special emphasis on parasites, insects and other forms that have special economic interrelationships with man.

(Foreman.)

Zool. 5. Comparative Vertebrate Morphology (4)—First semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, one year of zoology.

A comparative study of selected organ systems in certain vertebrate groups. Laboratory fee, \$8.00.

(Ramm.)

Zool. 14. Human Anatomy and Physiology (4)—First semester. Two

lectures and two two-hour laboratory periods a week. Prerequisite, Zoology 1 or Zoology 16.

For students who desire a general knowledge of human anatomy and physiology. Laboratory fee, \$8.00 each semester. (Grollman.)

Zool. 15. Human Anatomy and Physiology (4)—Second semester. Two lectures and two two-hour laboratory periods a week. Prerequisite, Zoology 14. A continuation of Zoology 14. Laboratory fee, \$8.00. (Grollman.)

Zool. 16. Human Physiology (4)—First semester. Two lectures and two two-hour laboratory periods a week. Open only to those students of the College of Home Economics for whom this is a required course.

An elementary course in physiology. Laboratory fee, \$8.00. (Wharton.)

Zool. 20. Vertebrate Embryology (4)—Second semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, one year of zoology.

Basic principles of early development of the vertebrates with special emphasis on the development of the chick to the end of the fourth day and early mammalian embryology. Laboratory fee, \$8.00. (Burhoe.)

Zool. 53. Physiology of Exercise (2)—Two lectures a week. Prerequisite, Zoology 15.

A detailed consideration of the mechanism of muscular contraction; the metabolic, circulatory, and the respiratory responses in exercise; and the integration by means of the nervous system. Open only to students for whom this is a required course. (Staff.)

Zool. 55S. Development of the Human Body (2)—Summer School. Five lecture periods a week. Cannot be counted as credit by Zoology majors.

A study of the main factors affecting the growth and development of the child with especial emphasis on normal development. (Burhoe.)

Zool. 75, 76—Journal Club (1, 1)—First and second semesters. One lecture period a week. Prerequisite, permission of the Department and a major in zoology.

Reviews, reports, and discussions of current literature. (Staff.)

For Graduates and Advanced Undergraduates

Zool. 102. General Animal Physiology (4)—Second semester. Occasional summer school. Two lectures and two three-hour laboratory periods a week. Prerequisites, one year of zoology and one year of chemistry.

The general principles of physiological functions as shown in mammals and lower animals. Laboratory fee, \$8.00. (Grollman.)

Zool. 104. Genetics (3)—First semester. Summer School. Three lecture periods a week. Prerequisite, one course in zoology or botany.

A consideration of the basic principles of heredity. (Burhoe.)

Zool. 108. Animal Histology (4)—Second semester. Occasional summer school. Two lectures and two three-hour laboratory periods a week. Prerequisite, one year of zoology.

A microscopic study of tissues and organs of vertebrates with special emphasis on

the mammal. Practice in elementary histo-technique will be included. Laboratory fee, \$8.00. (Brown.)

Zool. 110. Parasitology (4)—First semester. Occasional summer school. Two lectures and two two-hour laboratory periods a week. Prerequisite, one year of zoology.

A study of the taxonomy, morphology, physiology and life cycles of animal parasites. Laboratory fee, \$8.00. (Anastos.)

Zool. 111. Veterinary Parasitology (4)—Second semester. Two lectures and two two-hour laboratory periods a week. Prerequisite one year of Zoology or permission of the instructor. Alternate years. To be offered in 1956-57.

Classification, epidemiology and control of economically important parasites of domestic animals. Laboratory fee, \$8.00. (Anastos.)

Zool. 112. Wildlife Parasitology (4)—Second semester. Two lectures and two two-hour laboratory periods a week. Prerequisite, one year of zoology, or permission of the instructor. Alternate years. Not offered in 1956-57.

Classification, epidemiology and control of economically important parasites of game animals, fur bearers and commercial and game fishes. Laboratory fee, \$8.00. (Anastos.)

Zool. 118. Invertebrate Zoology (4)—First semester. Occasional summer school. Two lectures and two three-hour laboratory periods a week. Prerequisite, one year of zoology.

An advanced course dealing with the taxonomy, morphology, and embryology of the invertebrates, exclusive of insects. Laboratory fee, \$8.00. (Allen.)

Zool. 121. Principles of Animal Ecology (3)—Second semester. Occasional summer school. Two lectures and one three-hour laboratory period a week. Prerequisite, one year of zoology and one year of chemistry.

Animals are studied in relation to their natural surroundings. Biological, physical and chemical factors of the environment which affect the growth, behavior, habits, and distribution of animals are stressed. Laboratory fee, \$8.00. (Livingstone.)

Zool. 125. Fisheries Biology and Management (3)—First semester. Two lectures and one three-hour laboratory period a week. Alternate years. Not offered 1956-57.

A study of the biology and management of fresh and salt water fin fishes. Particular attention is given to practical applications in fisheries work. Laboratory fee, \$8.00. (Allen.)

Zool. 126. Shellfisheries (3)—Second semester. Two lectures and one three-hour laboratory period a week. Alternate years. Not offered 1956-57.

A study of the biology of shellfish and other invertebrates of economic importance. Particular attention is given to problems of management and conservation of these forms. Laboratory fee, \$8.00. (Allen.)

Zool. 127. Ichthyology (3)—Second semester. One lecture and two three-hour laboratory periods a week. Prerequisite, Zoology 5 and 20. Alternate years. To be offered 1956-57.

A course in the anatomy, embryology, distribution, habits and taxonomy of marine and fresh water fish. Laboratory fee, \$8.00. (Winn.)

Zool. 128. Zoogeography (4)—First semester. Two lectures and two two-hour laboratory periods a week. Prerequisite one year of zoology, botany or geology. Alternate years. To be offered 1956-57.

Principles governing the geographical distribution of living things, with particular reference to ecological changes during geologic time. Laboratory fee, \$8.00.
(Livingstone.)

Zool. 181. Animal Behavior (3)—(Same as Psych. 181)—Second semester. Three lectures a week. Prerequisite, permission of instructor. Alternate years. Not offered 1956-57.

A study of animal behavior, including considerations of social interactions, learning sensory processes, motivation, and experimental methods, with a major emphasis on mammals.
(Ross.)

For Graduates

Zool. 200. Marine Zoology (4)—First semester. Two lectures and two three-hour laboratory periods a week. Alternate years. Not offered 1956-57.

A course in the environmental characteristics of salt waters. Particular attention is given to brackish water environments such as the Chesapeake Bay. Laboratory fee, \$8.00.
(Allen.)

Zool. 202. Animal Cytology (4)—First semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, Zoology 108. Alternate years. To be offered 1956-57.

A study of cellular structure with particular reference to the morphology and physiology of cell organoids and inclusions. Laboratory fee, \$8.00.
(Brown.)

Zool. 203. Advanced Embryology (4)—Second semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, Zoology 20. Alternate years. Not offered 1956-57.

Mechanics of fertilization and growth. A review of the important contributions in the field of experimental embryology. Laboratory fee, \$8.00.
(Ramm.)

Zool. 204. Advanced Animal Physiology (4)—First semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, Zoology 102.

The principles of general and cellular physiology as found in animal life. Laboratory fee, \$8.00.
(Grollman.)

Zool. 205. Limnology (4)—First semester. Two lectures and two three-hour laboratory periods a week. Alternate years. Not offered 1956-57.

Application of the methods and principles of ecology to the intensive study of fresh-water ecosystems, with particular emphasis on the physics, chemistry and production biology of standing waters. Laboratory fee, \$8.00.
(Livingstone.)

Zool 206. Research (credit to be arranged)—First and second semesters. Summer school. Work on thesis project only. A—Cytology; B—Embryology; C—Fisheries; D—Genetics; E—Parasitology; F—Physiology; G—Systematics; and H—Ecology. Laboratory fee, \$8.00. Each semester.
(Staff.)

Zool. 207. Zoology Seminar (Credit to be arranged)—First and second semesters. Summer school. A—Cytology B—Embryology; C—Fisheries; D—Genetics; E—Parasitology; F—Physiology; G—Systematics; H—Ecology; and S—Recent advances. One lecture a week for each credit hour.
(Staff.)

Zool. 208. Special Problems in Zoology (Credit to be arranged)—First and second semesters. Summer school.

Studies in A—Cytology; B—Embryology; C—Fisheries; D—Genetics; E—Parasitology; F—Physiology; and G—Systematics. Hours, topics and credits to be arranged. Laboratory fee, \$8.00.
(Staff.)

Zool. 209. Advanced Parasitology (4)—First semester. Three lectures and one three-hour laboratory period a week. Prerequisite, Zoology 110 or permission of instructor. Alternate years.

The nature, origin and interrelations of parasitism with emphasis upon life histories. Laboratory fee, \$8.00. (Anastos.)

Zool. 210. Systematic Zoology (4)—Second semester. Three lectures and one three-hour laboratory period a week. Alternate years. To be offered 1956-57.

The principles and practices involved in the collection, preservation and classification of animals. Laboratory fee, \$8.00. (Wharton.)

Zool. 211-212. Lectures in Zoology (3, 3)—First and second semesters. Three lectures a week.

Advanced lectures by outstanding authorities in their particular field of Zoology. As the subject matter is continually changing, a student may register several times, receiving credit for several semesters. (Visiting Lecturers.)

Zool. 215S. Fisheries Technology (4)—Two lectures and two three-hour laboratory periods a week. Prerequisite, consent of instructor. To be offered as needed at Sea Food Processing Laboratory, Crisfield, Maryland.

The technological aspects of netting and collection of fish and other fishery resources, methods of handling the catch, marketing of fishery products, and recent advances in the utilization of fishery products. Laboratory fee, \$8.00. (Littleford.)

Zool. 216. Physiological Cytology (4)—Second semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, Chemistry 161, 162, Physics 11, Zoology 102, or permission of the instructor. Alternate years. Not offered 1956-57.

A study of the structure and function of cells by means of chemical, physical and microscopic methods. Laboratory fee, \$8.00. (Brown.)

Zool. 220. Advanced Genetics (4)—First semester. Two lectures and two three-hour laboratory periods a week. Prerequisite, Zool. 104. Alternate years. To be offered 1956-57.

A consideration of salivary chromosomes, the nature of the gene, chromosome irregularities, polyploidy, and mutations. Breeding experiments with *Drosophila* and small mammals will be conducted. Laboratory fee, \$8.00. (Burhoe.)

Zool. 223. Analysis of Animal Structure (4)—Second semester. Two lectures and two three-hour laboratory periods a week. Alternate years. To be offered 1956-57.

The integration of morphological systems and application of physical laws to animal structures. Laboratory fee, \$8.00. (Ramm.)

Zool. 231S. Acarology (3)—Summer Session only. Laboratory fee \$8.00.

An introductory study of the Acarina or mites and ticks with special emphasis on classification and biology. (Camln.)

Zool. 232S. Medical and Veterinary Acarology (3)—Summer Session only. Laboratory fee, \$8.00.

The recognition, collection, culture, and control of Acarina important to public health and animal husbandry with special emphasis on the transmission of diseases. (Strandtmann.)

Zool. 233S. Agricultural Acarology (3)—Summer Session only. Laboratory fee \$8.00.

The recognition, collection, culture and control of acarine pests of crops and ornamentals. (Baker.)

College of BUSINESS AND PUBLIC ADMINISTRATION

STAFF

J. Freeman Pyle, Ph.D., Dean

James H. Reid, M.A., Assistant Dean

ALBERT L. ALFORD, Instructor in Government and Politics.

A.B., University of Akron, 1948; A.M., Princeton, 1951; Ph.D., 1953.

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A.B., University of Newark, 1936; M.A., New Jersey State Teachers College, 1940; Ph.D., University of Michigan, 1955.

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B.S., Utah State Agricultural College, 1944; M.S., University of Denver, 1945; D.D.S., Syracuse University, 1949.

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B.A., University of California, 1937; Ph.D., University of Vienna, Austria, 1940.

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B.S., University of Wisconsin, 1948; M.S., 1949; Ph.D., Georgetown University, 1954.

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A.B., Marshall College, 1934; M.A., University of Nebraska, 1935; M.A., Princeton, 1937; Ph.D., 1938.

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A.B., University of Washington, 1925; M.B.A., 1930.

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B.S., National Tsing Hua University, 1942; M.A., Clark University, 1949.

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B.S., Virginia Polytechnic Institute, 1930; M.S., University of Illinois, 1934; Ph.D., University of Wisconsin, 1940.

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B.A., University of Kentucky, 1947; M.B.A., University of Mississippi, 1948; Ed.D., University of Oklahoma, 1954.

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B.B.A., 1951, M.A., 1952, University of Miami.

J. ALLAN COOK, Professor of Marketing.

B.A., William and Mary, 1928; M.B.A., Harvard, 1936; Ph.D., Columbia, 1947.

JOHN H. COVER, Professor and Director of Bureau of Business and Economic Research.

B.S., Columbia, 1915; A.M., 1919; Ph.D., 1927.

ALFRED A. CROWELL, Professor and Head of Department of Journalism and Public Relations.

A.B., University of Oklahoma, 1929; M.A., 1934; M.S.J., Northwestern, 1940.

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B.A., Maryland, 1947; M.A., Harvard, 1949; Ph.D., 1951.

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C.P.A., District of Columbia, 1949; B.S., University of Maryland, 1941; M.B.A., 1951.

JOHN H. DALTON, Assistant Professor of Economics.

A.B., University of California, 1943; Ph.D., 1955.

ALFRED DANEGGER, Assistant Professor of Press Photography, University Photographer.

B.S., University of Maryland, 1950.

JOHN C. DAWSON, Instructor in Economics.

A.B., Middlebury, 1948.

TOWNES L. DAWSON, Associate Professor of Business Law.

B.B.A., University of Texas, 1943; B.S., U. S. Merchant Marine Academy, 1946; M.B.A., University of Texas, 1947; Ph.D., 1950; L.L.B., 1954.

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B.S., Lafayette College, 1943; M.A., University of Maryland, 1952.

DUDLEY DILLARD, Professor and Head of Department of Economics.

B.S., University of California, 1935; Ph.D., 1940.

ROBERT G. DIXON, JR., Associate Professor of Government and Politics.

A.B., Syracuse, 1943; Ph.D., 1947.

CHARLES B. EDELSON, Instructor in Accounting.

B.B.A., University of New Mexico, 1949; M.B.A., Indiana University, 1950; C.P.A., Maryland, 1951.

ALLAN J. FISHER, Professor of Accounting and Finance.

B.S., Wharton School of Finance and Commerce, 1928; Litt.M., University of Pittsburgh, 1936; Ph.D., 1937.

JOHN H. FREDERICK, Professor and Head of Department of Business Organization.

B.S., Wharton School of Finance and Commerce, 1918; M.A., University of Pennsylvania, 1925; Ph.D., 1927.

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B.S., Bloomsburg State Teachers, 1949; M.A., Columbia, 1951.

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B.S., University of Maryland, 1953.

- ROBERT A. GOODELL, Assistant Professor of Industrial Management.
B.A., Augustana College, 1943; M.A., State University of Iowa, 1950; Ph.D., 1953.
- HENRY W. GRAYSON, Associate Professor of Economics.
B.A., University of Saskatchewan, 1937; M.A., University of Toronto, 1947; Ph.D., 1950.
- ALLAN G. GRUCHY, Professor of Economics.
B.A., University of British Columbia, 1926; M.A., McGill, 1928; Ph.D., University of Virginia, 1931.
- JOHN G. GURLEY, Associate Professor of Economics.
B.A., Stanford, 1942; Ph.D., 1951.
- DANIEL HAMBERG, Associate Professor of Economics.
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B.A., Trinity, Texas, 1932; M.A., University of Texas, 1941; Ph.D., 1951.
- GUY B. HATHORN, Instructor in Government and Politics.
B.A., University of Mississippi, 1940; M.A., 1942; Ph.D., Duke, 1950.
- CHARLES Y. HU, Professor of Geography.
B.S., University of Nanking, China, 1930; M.A., University of California, 1936; Ph.D., University of Chicago, 1941.
- EDGAR A. J. JOHNSON, Lecturer in Economics.
B.S., University of Illinois, 1922; M.A., Harvard, 1924; Ph.D., 1929.
- CHARLES A. KAPLER, Instructor in Accounting.
B.S., Boston University, 1932; M.A., Columbia, 1934; C.P.A., Maryland, 1954.
- ARTHUR E. KARINEN, Assistant Professor of Geography.
B.A., University of California, 1944; M.A., 1948.
- DONALD W. KRIMEL, Associate Professor of Public Relations.
B.Ed., Illinois State Teachers, 1941; Ph.M., University of Wisconsin, 1946; Ph.D., 1955.
- THOMAS J. LEARY, Instructor in Economics.
A.B., Northeastern University, 1951; M.A., Ohio State University, 1952; Ph.D., 1955.
- LEROY L. LEE, Assistant Professor of Accounting.
A.B., George Washington University, 1948; C.P.A., Maryland, 1949; A.M., George Washington, 1952.
- HOYT LEMONS, Lecturer in Geography.
B.Ed., Southern Illinois University, 1936; M.A., University of Nebraska, 1938; Ph.D., 1941.
- RICHARD L. LYONS, Lecturer in Journalism and Public Relations.
B.A., Wesleyan, 1943; M.A., Harvard, 1947.
- BRUCE W. MACY, Research Associate, Bureau of Business and Economic Research.
B.S., Iowa State College, 1952; M.S., 1954.
- F. WEBSTER MCBRYDE, Lecturer in Geography.
B.A., Tulane, 1930; Ph.D., University of California, 1940.
- WALTER S. MEASDAY, Assistant Professor of Economics.
A.B., William and Mary, 1945; Ph.D., Massachusetts Institute of Technology, 1955.
- EDMUND C. MESTER, Lecturer in the Department of Government and Politics and Executive Secretary of Maryland Municipal League.
A.B., University of Maryland, 1948; M.A., 1949.
- EARL W. MOUNCE, Professor of Law and Labor.
B.S., Univ. of Missouri, 1921; M.A., 1922; A.B., 1927; L.L.B., 1929; L.L.M., Univ. of Southern California, 1945.

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B.A., George Washington, 1934; M.Ed., Univ. of Pittsburgh, 1939.
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B.A., Principia College, 1947; M.A., American University, 1949; Ph.D., 1955.
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B.A., Univ. of Maryland, 1932.
- ARTHUR S. PATRICK, Associate Professor of Office Management and Business Education.
B.S., Wisconsin State College, 1931; M.A., University of Iowa, 1940.
- DONALD J. PATTON, Associate Professor of Geography.
S.B., Harvard, 1942; M.A., 1946; Ph.D., 1949.
- CHARLES D. PHILLIPS, Assistant Professor of Industrial Management and Personnel.
A.B., DePauw, 1949; M.A., State University of Iowa, 1950; Ph.D., 1952.
- JOE K. PHIPPS, Instructor in Journalism.
B.A., Trinity University, Texas, 1940; M.A., University of Texas, 1950.
- ELMER PLISCHKE, Professor and Head of Department of Government and Politics.
Ph.B., Marquette, 1937; M.A., American University, 1938; Ph.D., Clark University, 1943.
- J. FREEMAN PYLE, Professor of Marketing and Economics and Dean of College of Business and Public Administration.
Ph.B., Univ. of Chicago, 1917; M.A., 1918; Ph.D., 1925.
- JAMES H. REID, Professor of Marketing and Assistant Dean of College of Business and Public Administration.
B.S., Univ. of Iowa, 1923; M.A., American University, 1933.
- VICTOR ROTERUS, Consulting Professor of Geography.
Ph.B., Univ. of Chicago, 1930; M.S., 1931.
- G. DONALD SHELBY, Instructor in Economics.
B.A., University of Cincinnati, 1947; Ph.D., University of California, 1955.
- ANTHONY SAS, Instructor in Geography.
B.A., University of Amsterdam, 1947; M.A., University of Washington, 1951.
- SPENCER M. SMITH, Assistant Professor of Economics.
B.A., Univ. of Iowa, 1941; M.A., 1942; Ph.D., 1948.
- REUBEN G. STEINMEYER, Professor of Government and Politics.
A.B., American University, 1929; Ph.D., 1935.
- CHARLES T. SWEENEY, Professor of Accounting.
B.S., Cornell, 1921; M.B.A., Univ. of Michigan, 1928; C.P.A., Iowa, 1934; Ohio, 1936.
- HAROLD F. SYLVESTER, Professor of Personnel Administration.
Ph.D., Johns Hopkins, 1938.
- CHARLES A. TAFF, Professor of Transportation.
B.S., Univ. of Iowa, 1937; M.A., 1941; Ph.D., University of Maryland, 1952.
- WILLIAM VAN ROYEN, Professor and Head of Department of Geography.
M.A., Rijksuniversiteit Utrecht, 1925; Ph.D., Clark University, 1928.
- J. DONALD WATSON, Professor of Finance.
B.A., Reed College, 1926; M.B.A., Univ. of Michigan, 1931; C.L.U., American College of Life Underwriters, 1940; Ph.D., Northwestern, 1941.

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B.B.A., Univ. of Washington, 1925; C.P.A., Maryland, 1934; A.M., Yale, 1935.

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B.S., Cornell, 1925; M.S., 1932; Ph.D. (HONS), Univ. of Salonika, Greece, 1949.

HOWARD W. WRIGHT, Professor of Accounting.

B.S., Temple, 1937; M.A., Univ. of Iowa, 1940; C.P.A., Texas 1940; Ph.D., University of Iowa, 1947.

LELAND B. YEAGER, Assistant Professor of Economics.

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MEMBERS TEACHING ABROAD

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THEODORE McNELLY, Ph.D., Assistant Professor of Government and Politics.

JAMES A. STORING, Ph.D., Professor of Government and Politics.

DONALD E. TOTTEN, M.S., Instructor in Geography, and Assistant to the Director.

DONALD R. TOUSSAINT, M.A., Instructor in Government and Politics.

JOHN J. WUEST, Ph.D., Assistant Professor of Government and Politics.

COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

JOHN FREEMAN PYLE, Ph.D., *Dean*JAMES H. REID, M.A., *Assistant Dean*

THE University of Maryland is in an unusually favorable location for students of Business, Government and Politics, Economics, Public Administration, Geography, Journalism and Public Relations, Foreign Service and International Relations. Downtown Washington is only twenty-five minutes away in one direction, while the Baltimore business district is less than an hour in the other. There is frequent transportation service from the University gates to each city. Special arrangements are made to study commercial, manufacturing, exporting, and importing agencies and methods in Baltimore. Assistance is given qualified students who wish to obtain a first-hand glimpse of the farflung economic activities of the national government or to utilize the libraries, government departments, and other facilities available in Washington.

ORGANIZATION

The College comprises seven departments and two bureaus of research.

I. Department of Business Organization and Administration

1. Accounting and Statistics
2. Financial Administration
3. Industrial Administration
4. Insurance and Real Estate
5. Marketing Administration
 - (a) Advertising
 - (b) Foreign Trade and International Finance
 - (c) Retail Store Management
 - (d) Sales Management
6. Personnel Administration
7. Transportation Administration
 - (a) Airline and Airport Management
 - (b) Traffic Management

8. Public Administration

II. Department of Economics

III. Department of Foreign Service and International Relations

IV. Department of Geography

V. Department of Government and Politics

VI. Department of Journalism and Public Relations

VII. Department of Office Techniques and Management

1. Office Management
2. Office Techniques

VIII. Bureau of Business and Economic Research

IX. Bureau of Governmental Research

X. Maryland Municipal League (Affiliated)

Aims

The College of Business and Public Administration offers courses designed to prepare young men and women for service in business firms, governmental agencies, cooperative enterprises, labor unions, publishing firms, small business units, and other organizations requiring effective training in administrative skills and techniques, and for the teaching of business subjects, economics, geography, government and politics, and journalism and public relations in high schools and colleges. It supplies scientific training in administration to students and prospective executives on a professional basis comparable to university training in the other professional fields. Administration is regarded as a profession. The College of Business and Public Administration offers its students courses of instruction which present general principles and techniques of management and administration and brings together in systematic form the experiences and practices of business firms and governmental units. This plan of education does not displace practical experience, but supplements and strengthens it by shortening the period of apprenticeship otherwise necessary, and by giving a broad and practical knowledge of the major principles, politics, and methods of administration.

During the first half of the college study program the student secures a broad foundation upon which to base the professional and the more technical courses offered in the last half of the curriculum. The managerial and operating points of views are stressed in the advanced courses in production, marketing, labor, finance, real estate, insurance, accounting, office management and public administration. The purpose of the work offered is to aid the student as a prospective executive in developing his ability to identify and to solve administrative and managerial problems; and to adjust himself and his organization, policies, and practices to changing social, political and economic situations.

The aim of the college is to present and illustrate such sound principles of management as are applicable to both big business and small business. Large-scale business, because of its possible economies, will be expanded in some industries under certain well-known conditions. There are, on the other hand, industries and many situations which still call for the small business. If these small-scale businesses are to be operated with profit to the owners and with satisfactory and economical service to the public, it is imperative that authentic principles of administration be applied to them. Sound principles of ethical conduct are emphasized at all times throughout the various courses.

The primary aim of collegiate education for government and business services is to prepare for effective management. The College of Business and Public Administration, University of Maryland, was established to supply effective education in administration to the young men and women whose task will be

the guiding of the more complex business enterprises and governmental units resulting from industrial, social and political development and expansion.

Graduation Requirement

A minimum of 120 semester hours of credit with an average of "C" in courses suggested by the College in addition to the specified courses in military science, physical activities and hygiene are required for graduation. The student is required to have an average of "C" for courses used in meeting the quantitative graduation requirements. The time required to complete the requirements for the bachelor's degree for the average student is eight semesters. A superior student, by carrying more than the average load, can complete the work in a shorter period of time.

Degrees

The University confers the following degrees on students of Business and Public Administration: Bachelor of Science, Master of Business Administration, Master of Arts, and Doctor of Philosophy. The College has a number of graduate assistantships in Business Administration, Economics, Geography, Journalism and Public Relations, Government and Politics, and Bureau of Business and Economic Research available for qualified graduate students. Applications for these assistantships should be made directly to the Dean of the College of Business and Public Administration. (See bulletin of Graduate School for graduate rules and regulations.)

Each candidate for a degree must file in the office of the Registrar on a date announced for each semester a formal application for a degree. Candidates for degrees must attend a convocation at which degrees are conferred and diplomas are awarded. Degrees are conferred in absentia only in exceptional cases.

Junior Requirement

To be classified as a junior a student must have earned 56 semester hours of his freshman and sophomore requirements with an average of at least "C", plus the required work in military science, hygiene and physical activities for the freshman and sophomore years. If a student has better than a "C" average and lacks a few credits of having the total of 56, he may be permitted to take certain courses numbered 100 and above providing he has the prerequisites for these courses and the consent of the Dean.

Senior Residence Requirement

After a student has earned acceptable credit to the extent of 90 semester hours exclusive of the required work in military science, physical activities, and hygiene, either at the University of Maryland or elsewhere, he must earn a subsequent total of at least 30 semester hours with an average grade of "C" or better at the University of Maryland. No part of these credits may be transferred from another institution. Specific requirements for graduation in the selected curriculum must be met.

Programs of Study

The College offers programs of study in economics, business administration, office techniques, office management, public administration, government and

politics, geography, journalism and public relations, and some combination curriculums, e.g., business administration and law, commercial teaching and industrial education. Research is emphasized throughout the various programs.

Professional Objectives

The executive manager or administrator in modern business enterprises and governmental units and agencies should have a clear understanding of:

(a) the business organizations and institutions which comprise the modern business world;

(b) the political, social, and economic forces which tend to limit or to promote the free exercise of his activities; and

(c) the basic principles which underlie the efficient organization and administration of a business or governmental enterprise.

In addition, the executive or the prospective executive should:

(a) be able to express his thoughts and ideas in correct and concise English;

(b) have some useful knowledge of the physical world in which he operates.

(c) have a knowledge of the development of modern civilization through a study of history, government, economics, and other social studies;

(d) have a sympathetic understanding of people gained through a study of sociology, geography, politics, labor relations, marketing, and other subjects.

If the executive is to be successful in solving current (and future) business and governmental problems, he should be skilled in the scientific method of collecting, analyzing, and classifying pertinent facts in the most significant manner, and then, on the basis of these facts, be able to draw sound conclusions and to formulate general principles which may be used to guide his present and future professional or vocational conduct. In other words, probably the most important qualities in a successful executive are:

(a) the ability to arrive at sound judgments;

(b) the capacity to formulate effective plans and policies, and the imagination and ability to devise organizations, methods, and procedures for executing them.

Facilities Furnished

The teaching staff and the curriculums of the College of Business and Public Administration have been selected and organized for the purpose of providing a type of professional and technical training that will aid the capable and ambitious student in developing his potential talents to their full capacity.

The college study program on both the undergraduate and graduate levels presuppose effective training in English, history, government, science, and mathematics.* The program of study for any individual student may be so arranged as to meet the needs of those preparing for specific lines of work, such as accounting, advertising, banking, foreign trade, industrial administra-

*The major portion of this training is usually secured in the four years of high school and the first two years of college.

tion, marketing administration, personnel administration, office management, real estate practice, insurance, journalism, public relations, government employment, office management, teaching, and research.

Military Instruction

All male students unless specifically exempted under University rules are required to take basic air force ROTC training for a period of two years. The successful completion of this course is a prerequisite for graduation but it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation whichever occurs first.

Selected students who meet the requirements of the Military Department may carry advanced Air Force ROTC courses during their Junior and Senior years and may receive, under conditions determined by the Military, a regular or reserve commission in the United States Air Force.

General Information

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denominational clubs, fraternities, societies and special clubs, the University band, student publications, University Post Office and Supply Store, write to the Director of Publications for the General Information issue of the Catalog.

Costs

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140 to \$170 lodging for Maryland residents, or \$180 to \$220 for residents of other States and Countries; and laboratory fees which vary with the laboratory course pursued. A matriculation fee of \$10.00 is charged all new students. A charge of \$250.00 is assessed to all students who are non-residents of the State of Maryland.

For a more detailed statement of costs, write to the Director of Publications for a copy of the "General Information Issue" of the Catalog.

Admissions

All students desiring to enroll in the College of Business and Public Administration must apply to the Director of Admissions of the University of Maryland at College Park.

In selecting students more emphasis will be placed upon good marks and other indications of probable success in college than upon a fixed pattern of subject matter. In general, four units of English and one unit each

of Social Studies and Natural Sciences are required. One unit each of Algebra and Plane Geometry is desirable. While Foreign Language is desirable for certain programs no Foreign Language is required for entrance. Fine Arts, Trade and Vocational subjects are acceptable as electives.

For a more detailed statement of admissions, write to the Director of Publications for a copy of the "General Information" catalog.

HONORS AND AWARDS

The Dean's List of Distinguished Students. Any student who has passed at least 14 hours of work in the preceding semester, without failure of any course, and with an average grade on all courses of at least 3.5, will be placed on the Dean's List of Distinguished Students. This list is posted in the office of the Dean of the College.

Beta Gamma Sigma. The Alpha of Maryland Chapter of Beta Gamma Sigma was chartered in 1940. The purpose of this honorary society is to encourage and reward scholarship and accomplishment among students of commerce and business administration; to promote the advancement of education in the art and science of business; and to foster integrity in the conduct of business operations. Chapters of Beta Gamma Sigma are chartered only in schools holding membership in the American Association of Collegiate Schools of Business. Third and fourth year students in business administration are eligible; if in his third year, a student must rank in the highest four per cent of his class, and if in his fourth year, he must rank in the highest ten per cent in order to be considered for selection.

The Delta Sigma Pi Scholarship Key is awarded annually to the student who has maintained the highest scholastic standing during the entire course of study in business administration or economics.

Delta Sigma Pi was founded at New York University on November 7, 1907. The Gamma Sigma of Maryland chapter was chartered at the University of Maryland in 1950. Delta Sigma Pi is a professional fraternity organized to foster the study of business in universities; to encourage scholarship, social activity, and the association of students for their mutual advancement by research and practice; to promote closer affiliation between the commercial world and students of commerce; and to further a high standard of commercial ethics and culture, as well as the civic and commercial welfare of the community. Members are selected from the College of Business and Public Administration on the basis of leadership, scholastic standing, and promise of future business success.

The Pi Sigma Alpha Fred Hays Memorial Award in Government and Politics is awarded annually by the Department of Government and Politics to the graduating senior who earns the highest grades among the majors in Government and Politics of the graduating class. The award is a cash award, not less than \$25.00, provided by an anonymous alumnus. This award is named in memory of Fred Hays, an honor graduate and former student president of Pi Sigma Alpha, the honorary Political Science fraternity. Fred Hays was killed in action in Korea.

Baltimore Sunpapers Scholarship in Journalism. The Board of Trustees of the A. S. Abell Foundation, Inc. has contributed \$500 to provide a scholar-

ship in journalism to be awarded to a worthy senior in the College of Business and Public Administration who is majoring in editorial journalism.

The Maryland Motor Truck Association, Inc. provides an award of \$500 annually to a student concentrating in transportation who is registered in the College of Business and Public Administration.

The Davidson Transfer and Storage Co. gives an award of \$500 to a capable student in the College who is concentrating in transportation.

Pilot Freight Carriers, Inc. provides a \$500 award to a senior in the College of Business and Public Administration who is concentrating in transportation with a major interest in motor transportation.

The Maryland Association of Certified Public Accountants makes available a scholarship of \$200 for an outstanding student in accounting who is registered in the College.

STUDY PROGRAMS IN THE COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

A student in the College can so arrange his grouping and sequence of courses as to form a fair degree of concentration in one of the Departments. When, however, he wishes to become a *specialist* in any one of the departments, he should plan to continue his subjects on to the graduate level, working toward either the Master's or the Doctor of Philosophy degree.

I. BUSINESS ORGANIZATION AND ADMINISTRATION

Business organizations are set up primarily for the purpose of *producing* and *distributing* goods and services. Modern business administration requires a knowledge of and skill in the use of effective tools for the control of organizations, institutions, and operations. The curriculums of the Department of Business Organization and Administration emphasize the principles and problems of the development and the use of policies and organizations, and the methods, techniques and procedures of execution, in other words, the essence of Administration and Management.

Study Programs in the Department

The programs of study in the Department of Business Organization and Administration are so arranged as to facilitate concentrations according to the major functions of business organization. This plan is not, however, based on the assumption that these major divisions are independent units, but rather that each is closely related and dependent on the others. Every student in Business Administration, therefore, is required to complete satisfactorily a minimum number of required basic subjects in economics and in each of the major functional fields. Each graduate upon completion of the requirements for the bachelor's degree finds himself well grounded in the theory and practice of administration. There are five commonly recognized major business functions, viz: production, marketing, finance, labor relations, and control.

The function of control may be thought of as comprising two sectors, viz. internal and external. Internal control has to do with men, materials, and operations. External control is secured through the force of laws, and court,

board and commission decisions, also through the influence of custom and public opinion. Management endeavors to make adequate adjustments to these forces. Courses in law and public administration, for example, aid in giving the students an understanding of the problems, devices, and methods of external or "social" control.

Freshman and Sophomore Requirements

During the first half of the program of study each student in the Department of Business Organization and Administration is expected to complete the following basic subjects, except as indicated in a particular curriculum:

Required Courses:	Semester Hours
Eng. 1, 2—Composition and Readings in American Literature.....	6
Eng. 3, 4 or 5, 6—Composition and World or English Literature....	6
Math. 5, 6—Mathematics.....	6
Geog. 1, 2—Economic Resources.....	4
Econ. 4, 5—Economic Developments.....	4
B.A. 10, 11—Organization and Control.....	4
G. & P. 1—American Government (or Sociology of American Life)	3
Soc. 1—Sociology of American Life (or American Government)....	3
Hist. 5, 6—History of American Civilization.....	6
B.A. 20, 21—Principles of Accounting.....	8
Speech 18, 19—Introductory Speech.....	2
Econ. 31, 32—Principles of Economics.....	6
Military Training and Physical Activities for Men.....	16
Health and Physical Activities for Women.....	8
Total specified requirements.....	66 or 74

A minimum of forty per cent of the total number of credits required for graduation must be in subjects with designations other than Business Administration; forty per cent of the required 120 semester hours of academic work must be in Business Administration subjects, the other twenty per cent may be in either group or comprise a combination of the two groups of subjects. An average of "C" in Business Administration courses is required for graduation.

Freshmen who expect to make a concentration in foreign trade, or who plan to enter public service abroad, should elect an appropriate foreign language. If a foreign language is elected, 12 semester hours or the equivalent must be completed with an acceptable grade.

Junior and Senior Requirements

During the junior and senior years each student in the department is required to complete in a satisfactory manner the following specified courses unless the particular curriculum being followed provides otherwise:

Econ. 140—Money and Banking.....	3
B. A. 140—Financial Management.....	3
B. A. 150a—Marketing Principles and Organization.....	3
B. A. 150—Marketing Management.....	3
Econ. 160—Labor Economics.....	3
B. A. 160—Personnel Management.....	3
B. A. 130—Elements of Statistics.....	3
B. A. 180, 181—Business Law I, II.....	8

Total..... 29

The remaining credits for juniors and seniors may be used to meet the requirements for one of the special concentration programs, for example, in Public Administration, Foreign Service, Commercial Teaching, and in the fields of Business Administration, such as: Accounting and Statistics, Production Administration, Marketing, Advertising, Retailing, Purchasing, Foreign Trade, Transportation, Labor Relations, Real Estate, Insurance, Investment and General Finance. Juniors and seniors may elect appropriate Secretarial Training courses.

Combined Administration and Law Program

When a student elects the combination Administration-Law curriculum, he must complete in a satisfactory manner the specific requirements listed for the first three years of the general curriculum in administration plus enough electives to equal a minimum of 92 credits exclusive of military science, physical activities and hygiene, with an average grade of at least "C." The last year of college work before entering the Law School must be done in residence at College Park. The Bachelor of Science degree from the College of Business and Public Administration is conferred upon the completion of the first year in the Law School with an average grade of "C" or better, and the recommendation of the Dean of the Law School. Business Law cannot be used as credit in this combined curriculum.

Master of Business Administration

Candidates for the degree of Master of Business Administration are accepted in accordance with the procedures and requirements for the Graduate School. See Graduate School Catalog, Section II.

The General Curriculum in Administration

This curriculum is set up on an eight semester basis which corresponds to the traditional four-year course that leads to a bachelor's degree. A student may complete the full course in a shorter period of time by attending summer sessions. A superior student may, however, complete the course in a shorter period of time by carrying a heavier load each semester.

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Geog. 1, 2—Economic Resources.....	2	2
Econ. 4, 5—Economic Developments.....	2	2
Eng. 1, 2—Composition and Readings in American Literature....	3	3
B. A. 10, 11—Organization and Control.....	2	2
Mathematics 5 and 6.....	3	3
G. & P. 1—American Government (or Sociology of American Life)	3	...
Soc. 1—Sociology of American Life (or American Government)...	...	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Hea. 2, 4—Personal and Community Health (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total.....	18-19	18-19

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4, or 5, 6—Composition and World or English Literature..	3	3
Econ. 31, 32—Principles of Economics.....	3	3
B. A. 20, 21—Principles of Accounting.....	4	4
Speech 18, 19—Introductory Speech.....	1	1
H. 5, 6—History of American Civilization.....	3	3
Electives (Girls).....	3	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total.....	17-18	17-18
<i>Junior Year</i>		
Econ. 140—Money and Banking.....	3	....
B. A. 140—Financial Management.....	....	3
B. A. 130—Elements of Business Statistics.....	3	....
B. A. 150a—Marketing Principles and Organization.....	3	....
B. A. 150—Marketing Management.....	....	3
Econ. 160—Labor Economics.....	3	....
B. A. 160—Personnel Management.....	....	3
Electives in Bus. & Pub. Adm., Economics, or other approved subjects.....	3	6
Total.....	15	15
<i>Senior Year</i>		
B. A. 180, 181—Business Law I, II.....	4	4
Econ. 131—Comparative Economic Systems.....	3	....
Econ. 171—Economics of American Industries or B. A. 184—Public Utilities.....	....	3
Econ. 142—Public Finance and Taxation.....	3	....
B. A. 189—Government and Business.....	....	3
Electives in Bus. & Pub. Adm., Economics or other approved subjects.....	6	6
Total.....	16	16

Electives may be chosen under the direction of a faculty advisor from courses in Accounting, Statistics, Geography, Public Utilities and Public Administration, Secretarial Training, or other courses that will aid the student in preparing for his major objective. The electives indicated in the General Course are provided so that students can arrange their schedules, under the guidance of a faculty adviser, in such a way as to secure a concentration or major when desired in:

- | | |
|------------------------------|----------------------------------|
| 1. Accounting and Statistics | 5. Marketing Administration |
| 2. Financial Administration | 6. Personnel Administration |
| 3. Industrial Administration | 7. Transportation Administration |
| 4. Insurance and Real Estate | 8. Public Administration |

1. Accounting and Statistical Control Study Program

Internal control in modern business and governmental organizations is a major over-all administrative function. The rapid growth in size and com-

plexity of current governmental units and business enterprises has emphasized the importance of the problems of control in management. In order to control intelligently and effectively the manifold activities of these units, it is necessary to establish an organization, formulate policies, and develop methods of procedures. In order to perform satisfactorily these managerial activities, it is necessary to have pertinent facts concerning the operations of the various units, divisions, and departments. It is the function of the accounting and statistical departments to secure, analyze, classify, and interpret these facts.

This study program is designed to give the student a broad training in administrative control supplemented by specific technical training in the problems, procedures, methods and techniques of accounting and statistics. If the program is followed diligently, the student may prepare himself for a career as a public accountant, tax specialist, cost accountant, auditor, budget officer, comptroller, credit manager, or treasurer.

In order to provide for practical experience arrangements have been made with firms of certified public accountants in Baltimore, New York and the District of Columbia for apprenticeship training in the field of public accounting. This training is provided between semesters of the senior year (approximately January 15 to February 15), and for the semester immediately following graduation. A student may also elect to take one semester of apprenticeship training before graduation.

The following study program provides courses for those wishing to concentrate in this important field:

Students who select a concentration in accounting and statistics follow the general study program in the freshman and sophomore years.

	Semester	
	I	II
<i>Junior Year</i>		
B. A. 110, 111—Intermediate Accounting.....	3	3
B. A. 121—Cost Accounting.....	....	4
B. A. 123—Income Tax Accounting.....	4	....
B. A. 130—Elements of Business Statistics.....	....	3
Econ. 140—Money and Banking.....	3	....
B. A. 140—Financial Management.....	....	3
B. A. 150a—Marketing Principles and Organization.....	3	....
B. A. 150—Marketing Management.....	....	3
Elective.....	3	....
Total.....	16	16
<i>Senior Year</i>		
Econ. 160—Labor Economics.....	3	....
B. A. 160—Personnel Management.....	....	3
B. A. 124, 126—Advanced Accounting Theory and Practice.....	3	3
B. A. 122—Auditing Theory and Practice.....	3	....
B. A. 127—Advanced Auditing Theory and Practice.....	....	3
B. A. 180, 181—Business Law.....	4	4
Electives.....	3	3
Total.....	16	16

The student interested in the field may select such electives, with the aid of his adviser, from the following list of subjects such courses as will best meet his needs:

- | | |
|--|--|
| B. A. 116—Public Budgeting (3) | B. A. 220—Managerial Accounting (3) |
| B. A. 118—Governmental Accounting (3) | B. A. 221, 222—Seminar in Accounting (arranged) (3) |
| B. A. 125—C. P. A. Problems (3)* | B. A. 226—Accounting Systems (3) |
| B. A. 129—Apprenticeship in Accounting (0) | B. A. 228—Research in Accounting (arranged) (3) |
| B. A. 132, 133—Advanced Business Statistics (3, 3) | B. A. 229—Studies of special problems in the fields of Control and Organization (arranged) (3) |
| B. A. 141—Investment Management (3) | Econ. 131—Comparative Economic Systems (3) |
| B. A. 143—Credit Management (3) | Econ. 132—Advanced Economic Principles (3) |
| B. A. 148—Advanced Financial Management (3) | Econ. 134—Contemporary Economic Thought (3) |
| B. A. 149—Analysis of Financial Statements (3) | Econ. 142—Public Finance and Taxation (3) |
| B. A. 165—Office Management (3) | |
| B. A. 166—Business Communications (3) | |
| B. A. 184—Public Utilities (3) | |
| B. A. 210—Advanced Accounting Theory (2-3) | |

2. Financial Administration

A nation with a highly developed industrial system requires an effective financial organization. Production and marketing activities of business enterprises must be financed; a large volume of consumer purchases depend on credit, and the activities of local, state, and federal government depend, in large part, on taxation and borrowing. To meet these needs a complicated structure of financial institutions, both private and public, has evolved together with a wide variety of financial instruments. The methods used are equally varied and complicated. Since the financing service is so pervasive throughout our economic life and because it is an expense which must be borne by the ultimate purchaser, the management of the finance function is endowed with a high degree of public interest.

This study program is designed to give the student fundamental information concerning financing methods, institutions, and instruments; and to aid him in developing his ability to secure and evaluate pertinent facts, and to form sound judgments with reference to financial matters. Through a wise selection of subjects the student who selects this curriculum may prepare himself for positions in the commercial, savings, and investment banking fields, investment management; corporate financial management; real estate financing; and insurance. A student may qualify himself to enter government service, e.g., in departments regulating banking operations, international finance, the issuance and sales of securities, and a number of financial corporations owned and operated or controlled by the government.

Students wishing to form a concentration in Financial Administration should follow the general study program for the freshman and sophomore

*C. P. A. Problems is recommended for students who plan to go into public accounting. Such students should plan their study program so as to meet the professional examination requirements of the State in which they expect to take the examination or to practice.

years, the program for the junior and senior years is outlined as follows:

	Semester	
	I	II
<i>Junior Year</i>		
Econ. 140—Money and Banking.....	3	....
B. A. 140—Financial Management.....	....	3
B. A. 130—Elements of Business Statistics.....	....	3
B. A. 110-111—Intermediate Accounting.....	3	3
B. A. 166—Business Communications.....	3	....
B. A. 150a—Marketing Principles and Organization.....	3	....
B. A. 150—Marketing Management.....	....	3
Electives in Economics, Government and Politics, and Business and Public Administration.....	3	4
Total.....	15	16
<i>Senior Year</i>		
B. A. 180, 181—Business Law.....	4	4
B. A. 141—Investment Management.....	3	....
B. A. 143—Credit Management.....	3	....
B. A. 160—Personnel Management.....	....	3
Econ. 160—Labor Economics.....	3	....
B. A. 148—Advanced Financial Management.....	....	3
Electives.....	3	6
Total.....	16	16

Selection of electives may be made with the aid of the adviser from the following list of subjects:

B. A. 123—Income Tax Accounting (4)	B. A. 249—Studies of Special Problems in the Field of Financial Administration (arranged)
B. A. 147—Business Cycle Theory (3)	Econ. 141—Theory of Money, Credit and Prices (3)
B. A. 149—Analysis of Financial Statements (3)	Econ. 142—Public Finance and Taxation (3)
B. A. 165—Office Management (3)	Econ. 149—International Finance and Exchange (3)
B. A. 184—Public Utilities (3)	Econ. 241—Seminar in Money, Credit and Prices (arranged)
B. A. 190—Life Insurance (3)	
B. A. 191—Property Insurance (3)	
B. A. 196—Real Estate Finance (3)	
B. A. 240—Seminar in Financial Management (3)	

3. Industrial Administration

This curriculum is designed to acquaint the student with the problems of organization and control in the field of industrial management. Theory and practice with reference to organization, policies, methods, processes, and techniques are surveyed, analyzed, and criticized. The student becomes familiar with the factors that determine plant location and layout, types of buildings, and the major kinds of machines and processes utilized, as well as effective methods and devices for the selection and utilization of men, materials and machines.

The courses, in addition to those required of all students in the college, which will aid the undergraduate student in preparing himself for a useful

place in this field of effort are:

- *B. A. 121—Cost Accounting (4)
- B. A. 122, 127—Auditing (3, 3)
- B. A. 132, 133—Advanced Business Statistics (3, 3)
- B. A. 153—Purchasing Management (3)
- *B. A. 163—Industrial Relations (3)
- B. A. 165—Office Management (3)
- B. A. 166—Business Communications (3)
- *B. A. 167—Job Evaluation and Merit Rating (2)
- *B. A. 169—Industrial Management (3)
- B. A. 170—Transportation Services and Regulation (3)
- B. A. 171—Industrial and Commercial Traffic Management (3)
- B. A. 172—Motor Transportation (3)
- *B. A. 177—Motion Economy and Time Study (3)
- *B. A. 178—Production Planning and Control (2)
- B. A. 265—Development and Trends in Industrial Management (3)

4. Insurance and Real Estate

Today both insurance and real estate are fields which prefer university trained persons. In insurance, opportunities are available in the home offices and in the field to persons who will ultimately specialize in life, property, or casualty insurance. In real estate, a group of specialists—real estate brokers, appraisers, property managers, and persons handling the financing of real estate—are now recognized. A proper arrangement of courses by a student will provide academic preparation toward the examinations for Chartered Life Underwriter (C.L.U.), Chartered Property Casualty Underwriter (C.P.C.U.), and new professional requirements in real estate. Also, from a purely personal or family viewpoint these courses can be of immense value.

Students who select a concentration in insurance and real estate should follow the general study program for the freshman and sophomore years. The program for the junior and senior years is outlined below.

	Semester	
	I	II
<i>Junior Year</i>		
Econ. 140—Money and Banking.....	3	....
B. A. 140—Financial Management.....	....	3
B. A. 130—Elements of Business Statistics.....	3	....
B. A. 150a—Marketing Principles and Organization.....	3	....
B. A. 150—Marketing Management.....	....	3
B. A. 190—Life Insurance.....	3	....
B. A. 191—Property Insurance.....	....	3
B. A. 195—Real Estate Principles.....	3	....
B. A. 196—Real Estate Finance.....	....	3
Elective.....	....	3
Total.....	15	15
<i>Senior Year</i>		
B. A. 180, 181—Business Law.....	4	4
Econ. 160—Labor Economics.....	3	....
B. A. 160—Personnel Management.....	....	3
B. A. 141—Investment Management.....	3	....
B. A. 194—Insurance Agency Management.....	3	....
B. A. 197—Real Estate Management.....	....	3
Electives.....	3	6
Total.....	16	16

*These courses are specific requirements for students concentrating in Industrial Administration

Selection of electives may be made with the aid of the adviser from the following and other subjects:

- | | |
|--|---|
| Soc. 114—The City (3) | B. A. 148—Advanced Financial Management (3) |
| Soc. 173—Social Security (3) | B. A. 151—Advertising (3) |
| Econ. 141—Theory of Money, Credit and Prices (3) | B. A. 165—Office Management (3) |
| Econ. 142—Public Finance and Taxation (3) | B. A. 166—Business Communications (3) |
| B. A. 123—Income Tax Accounting (4) | B. A. 189—Business and Government (3) |
| B. A. 147—Business Cycle Theory (3) | B. A. 290—Seminar in Insurance (3) |
| | B. A. 295—Seminar in Real Estate (3) |

5. Marketing Administration

Modern business administration is concerned largely with marketing activities. Buying and selling of products and services comprise the major portion of the time and energies of a large group of our population. The ideals of our system of private property, individual initiative and free enterprise are closely related to present-day marketing organization and practice. Effective solutions of the problems of marketing are necessary to the success of the individual business enterprise and for the welfare of the consumer. If the costs of distribution are to be reduced or kept from rising unduly, it is necessary that careful study be made of the organization, policies, methods, and practices of advertising, selling, purchasing, merchandising, transportation, financing, storing, and other related marketing activities, and appropriate action taken by qualified technicians and executives.

The purpose of the marketing administration program is to give the student an opportunity to analyze, evaluate and otherwise study the problems connected with marketing institutions, organizations, policies, methods, and practices. The student who elects this field of concentration may develop his aptitudes, on the technical level, for research, selling, buying, and preparing advertising copy, and on the administrative level develop his abilities for organizing, planning, and directing the various activities in the field of marketing.

Thoughtful selection of courses from the following lists, in addition to those required of all students in business administration, will aid the student in preparing himself for an effective position in the field of marketing. He may form a concentration in:

- | | |
|----------------------|----------------------------|
| a. General Marketing | d. Retail Store Management |
| b. Advertising | e. Sales Management |
| c. Foreign Trade | |

- B. A. 132, 133—Advanced Business Statistics (3, 3)
- *B. A. 143—Credit Management (3)
- Econ. 147—Business Cycle Theory (3)
- *B. A. 151—Advertising. (3)
- B. A. 152—Advertising Copy and Layout (3)
- *B. A. 153—Purchasing Management (3)
- *B. A. 154—Retail Store Management (3)
- B. A. 155—Problems in Retail Merchandising (3)
- B. A. 158—Advertising Campaigns (3)
- B. A. 159—Newspaper Advertising (3)
- B. A. 165—Office Management (3)
- B. A. 166—Business Communications (3)
- B. A. 170—Transportation Services and Regulation (3)
- B. A. 171—Industrial and Commercial Traffic Management (3)
- B. A. 172—Motor Transportation (3)
- B. A. 190—Life Insurance (3)
- B. A. 191—Property Insurance (3)
- B. A. 195—Real Estate Principles (3)
- B. A. 250—Problems in Sales Management (3)
- B. A. 251—Problems in Advertising (3)
- B. A. 252—Problems in Retail Store Management (3)
- B. A. 257—Seminar in Marketing Management (arranged) (3)
- B. A. 258—Research Problems in Marketing (arranged) (3)

For those especially interested in foreign trade, selections may be made from the following courses:

- †Econ. 136—International Economic Policies and Relations (3)
- Econ. 137—Economic Planning and Post-war Problems (3)
- †Econ. 149—International Finance and Exchange (3)
- B. A. 151—Advertising Programs and Campaigns (3)
- †B. A. 157—Foreign Trade Procedure (3)
- †B. A. 170—Transportation Services and Regulation (3)
- †B. A. 173—Overseas Shipping (3)
- B. A. 189—Government and Business (3)
- Ec. Geog. 4—Regional Geography of the Continents (3)
- Geog. 100, 101—Regional Geography of the United States and Canada (3, 3)
- Geog. 102—The Geography of Manufacturing in the United States and Canada (3)
- Geog. 110, 111—Latin America (3, 3).
- Geog. 115—Peoples of Latin America (2)
- Geog. 120—Economic Geography of Europe (3)
- Geog. 122—Economic Resources and Development of Africa (3)
- Geog. 130-131—Economic and Political Geog. of Southern and Eastern Asia (3, 3)
- Geog. 180, 181—Principles of Geography (3, 3)
- Geog. 260-261—Problems in the Geog. of Europe and Africa (3, 3)

6. Personnel Administration and Labor Economics

Recent development of large scale operation on the part of both private enterprise and government has emphasized the growing importance of personnel relationships. Successful operation depends on harmonious cooperation between employer and employee. The interests of the public, the owners, and the management, as well as those of the employees, may be greatly affected by the solutions evolved in any given case of personnel relationship. The growth of large-scale, centrally controlled labor organizations and the increased participation of governmental agencies in labor disputes have created problems for which business management, union officials, and government representatives have been, on the whole, ill-prepared to solve satisfactorily. The government, the unions, and business need men and women qualified to deal effectively with these problems. They should have broad training and technical information in the fields of business and public administration, economics, and psychology, together with suitable personalities. They must be able to approach these problems with an open mind, unbiased by personal and class prejudices.

*These courses are specific requirements for students taking a concentration in Marketing Management.

†These courses are specific requirements for students taking a concentration in Foreign Trade.

Personnel administration which has to do with the direction of human effort, is concerned with securing, maintaining, and utilizing, an effective working force. People adequately trained in personnel administration find employment in business enterprises, governmental departments, governmental corporations, educational institutions and charitable organizations.

A student may select from the following courses those which will, in addition to those required of all students in business administration, best prepare him for the kind of personnel work he wishes to enter.

- *B. A. 163—Industrial Relations (3)
- *B. A. 164—Recent Labor Legislation and Court Decisions (3)
- *B. A. 167—Job Evaluation and Merit Rating (2)
- *B. A. 169—Industrial Management (3)
- G. & P. 111—Public Personnel Administration (3)
- Psych. 2—Applied Psychology (3)
- Psych. 121—Social Psychology (3)
- Psych. 161—Psychological Techniques in Personnel Administration (3)
- G & P. 214—Problems in Public Personnel Administration (arranged) (3)
- B. A. 262—Seminar in Contemporary Trends in Labor Relations (3)
- B. A. 265—Development and Trends in Industrial Management (3)
- B. A. 266—Research in Personnel Management (arranged) (3)
- B. A. 267—Research in Industrial Relations (arranged) (3)
- B. A. 269—Studies of Special Problems in Employer-Employee Relationships (arranged) (3)
- B. A. 271—Theory of Organization (3)

7. Transportation Administration

The problems of transportation administration are complex and far reaching. The student preparing for this type of work should be well grounded in economics, government, and business administration, as well as being proficient in the use of the technical tools of the profession. Rail, highway, water, and air transportation are basic to our economic life, in fact, to our very existence. This curriculum gives considerable emphasis to air transportation.

The following courses, in addition to those required of all students in the college will aid the student in preparing himself for a useful place in the fields of air, water, highway, and railway transportation. This curriculum besides preparing for positions with carriers also fits the student for industrial traffic management, trade association and government work in transportation. (To major in Transportation Administration the student must complete 15 hours of the courses listed below including B.A. 171):

- B. A. 157—Foreign Trade (3)
- B. A. 170—Transportation Services and Regulation (3)
- B. A. 171—Industrial and Commercial Traffic Management (3)
- B. A. 172—Motor Transportation (3)
- B. A. 173—Overseas Shipping (3)
- B. A. 174—Commercial Air Transportation (3)
- B. A. 175—Airline Administration (3)
- B. A. 176—Problems in Airport Management (3)
- B. A. 184—Public Utilities (3)
- B. A. 270—Seminar in Air Transportation (3)
- B. A. 275—Seminar in Motor Transportation (3)
- B. A. 277—Seminar in Transportation (3)
- B. A. 284—Seminar in Public Utilities (3)

Other courses may be selected with the approval of the adviser for the curriculum.

*These courses are specific requirements for those students taking a concentration in Personnel Administration and Labor Economics.

8. Public Administration

The trend toward increased governmental participation in the fields of our economic, political and social life has been developing for a number of years so that now the government is the largest business enterprise in the country. In addition to the Federal Government, State and Local Government agencies have called upon the universities to aid in training young men or women for effective public service. Students desiring a specialized training in the broad field of government service should take the regularly established curriculum in Government and Politics appearing in pages 321 and 322 of this Catalog and select electives from the following:

- G. & P. 111—Public Personnel Administration (3)
- G & P. 112—Public Financial Administration (3)
- G. & P. 181—Administrative Law (3)
- B. A. 10, 11—Organization and Control (2, 2)
- B. A. 20, 21—Principles of Accounting (4, 4)
- B. A. 130—Elements of Business Statistics (3)
- B. A. 189—Business and Government (3)
- Econ. 140—Money and Banking (3)
- B. A. 150a—Marketing Principles and Organization (3)

Other courses may be selected with the approval of the adviser for the program. Students pursuing this curriculum should arrange their programs under the supervision of the Department of Government and Politics.

II. ECONOMICS

The program of studies in the field of Economics is designed to meet the needs of students who wish to concentrate either on a major or minor scale in this division of the Social Sciences. Students who expect to enroll in the professional schools and those who are planning to enter the fields of Business or Public Administration, or Foreign Service, or Social Service Administration, will find courses in economics of considerable value to them in their later work. A student of economics should choose his courses to meet the requirements for his major objective, or the Master of Arts, or a Doctor of Philosophy degree. (He should consult the bulletin of the Graduate School for the general requirements for the advanced degrees.)

Requirements for an Economics Major

In addition to the University requirements in Social Studies, English, Military Science, Hygiene, and Physical Activities, the student majoring in Economics is required to complete a minimum of 36 semester hours in Economics with an average grade of not less than "C". Required courses are Econ. 4, 5, 31, 32, and 132. B.A. 130 (Statistics) is also required, and B.A. 20 and 21 (Accounting) are recommended. Other courses in Economics to meet the requirements of the major are to be selected with the aid of a faculty adviser. Business Administration courses which may count as Economics credit are B.A. 130, 132, 133, 147, 164, 184, 189.

Economics majors enrolled in the College of Arts and Sciences must, of course, fulfill all the specific requirements of that college, including 12 semester

hours of Foreign Language and 12 semester hours of Natural Science and Mathematics.

Economics majors enrolled in the College of Business and Public Administration may elect to take a foreign language or, in lieu of Foreign Language, may take B.A. 10 and 11 and Geog. 1 and 2. All B.P.A. students must take 6 semester hours of Mathematics, but may substitute B.A. 20 and 21 for Natural Science.

A student who elects Economics as a major will normally have earned 10 semester hours credit in the lower division courses in Economics prior to beginning the advanced work of the junior year. These lower division courses must be completed with an average grade of not less than "C".

The specific courses comprising the student's program of study should be selected with the aid of a faculty adviser in terms of the student's objectives and major interest.

Study Program for Economics Majors

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Speech 18, 19—Introductory Speech.....	1	1
Econ. 4, 5—Economic Developments.....	2	2
Eng. 1, 2—Composition and American Literature.....	3	3
Mathematics 5, 6 or 10, 11 or 14, 15, 17.....	3	3
G. & P. 1—American Government (or Sociology of American Life).....	3	....
Soc. 1—Sociology of American Life (or American Government)...	....	3
Foreign Language or B. A. 10, 11.....	3-2	3-2
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Health 2, 4—Personal and Community Health (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total	17-19	17-19

Sophomore Year

Econ. 31, 32—Principles of Economics.....	3	3
Eng. 3, 4, or 5, 6—Composition and World or English Literature	3	3
Foreign Language or Geog. 1, 2.....	3-2	3-2
Natural Science or B. A. 20, 21.....	3	3
H. 5, 6—History of American Civilization.....	3	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total	15-19	15-19

<i>Junior Year</i>	Semester	
	I	II
Econ. 140—Money and Banking.....	3	....
B. A. 150a—Marketing Principles and Organization.....	3	....
B. A. 130—Elements of Business Statistics.....	....	3
Econ. 160—Labor Economics.....	3	....
Econ. 131—Comparative Economic Systems.....	....	3
Electives in Economics, Government and Politics, and Business Administration*.....	6	9
Total.....	15	15

<i>Senior Year</i>		
Econ. 132—Advanced Economic Principles.....	3	....
Econ. 134—Contemporary Economic Thought.....	3	....
Econ. 171—Economics of American Industries or		
B. A. 184—Public Utilities.....	3	....
Econ. 142—Public Finance and Taxation.....	....	3
Electives in Economics, Government and Politics and Business Administration*.....	6	12
Total.....	15	15

III. FOREIGN SERVICE AND INTERNATIONAL RELATIONS

If the student expects to enter the foreign service, he should be well grounded in the language, geography, history, and politics of the region of his anticipated location as well as in the general principles and practices of organization and administration. It should be recognized that only a limited training can be secured during the undergraduate period. When more specialized or more extensive preparation is required, graduate work should be planned. The individual program in either instance, however, should be worked out under the guidance of a faculty adviser. The following study program is offered as a guide in the selection of subjects.

Freshman Year

Eng. 1, 2—Composition and American Literature.....	3	3
G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
Foreign Language (Selection).....	3	3
Geog. 1, 2—Economic Resources.....	2	2
Econ. 4, 5—Economic Developments.....	2	2
Mathematics 5, 6 or 10, 11.....	3	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Health 2, 4—Personal and Community Health (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total.....	19-20	19-20

*Other electives may be selected with the approval of the Head of the Department of Economics. Normally these electives must be on the Junior and Senior level.

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4, or 5, 6—Composition and World or English Literature	3	3
Foreign Language (Continuation of Freshman year selection)...	3	3
Econ. 31, 32—Principles of Economics.....	3	3
H. 5, 6—History of American Civilization.....	3	3
G. & P.—Comparative Government, selection in accordance with the student's need.....	2	2
Sp. 18, 19—Introductory Speech.....	1	1
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total.....	16-19	16-19

<i>Junior Year</i>		
B. A. 150a—Marketing Principles and Organization.....	3	....
Econ. 140—Money and Banking.....	3	....
Econ. 160—Labor Economics.....	....	3
G. & P. 101—International Political Relations.....	....	3
B. A. 130—Elements of Business Statistics.....	3	....
Econ. 131—Comparative Economic Systems.....	....	3
Ec. Geog.—Selection of Regional division to fit student's needs...	3	3
Electives to meet student's major interest.....	3	3
Total.....	15	15

<i>Senior Year</i>		
G. & P. 102—International Law.....	....	3
G. & P. 106—American Foreign Relations.....	....	3
G. & P. 131—Constitutional Law.....	3	....
B. A. 189—Government and Business.....	3	....
Ec. 132—Advanced Economic Prin., or Ec. 134, Contemporary Thought.....	3	....
G. & P. 181—Administrative Law.....	3	3
Econ. 136—International Economic Policies and Relations.....	3	....
Econ. 149—International Finance and Exchange.....	....	3
Electives to meet student's major interest.....	....	3
Total.....	15	15

Suggested electives:

American History 108, 127, 129, 133, 135, 145, and 146.

European History 175, 176, 179, 180, 185, 186, and History 191—History of Russia;
History 195—The Far East.

Government and Politics 7, 8, 9, 10, 105, 106, and 154.

IV. GEOGRAPHY

This curriculum is designed to aid the student in securing the facts concerning the major geographical areas of the world and in studying and analyzing the manner in which these facts affect economic, political, and social activities. The student interested in international trade, international political relations, diplomacy, overseas governments, and national aspirations will find the courses in this department of great practical value. Work is offered on both the undergraduate and the graduate levels.

Students who expect to enroll in the engineering and professional schools and those who are planning to enter the fields of Business and Public Administration, or Foreign Service, will find courses in geography of material value to them in their later work. Openings exist for well-trained geographers in government service, in universities, colleges, and high schools, as well as in private business. A student of geography should choose his courses to meet the requirements for his major objective, be it undergraduate major or minor, or a Master of Arts, or a Doctor of Philosophy degree. He should consult the bulletin of the Graduate School for the general requirements for the advanced degrees.

Requirements for an Undergraduate Major in Geography

A student majoring in geography is required to complete satisfactorily 120 semester hours of work in addition to the required work in military science, hygiene, and physical activities. A general average of at least "C" is required for graduation. Only courses in which the student receives a grade of "C" or above will be counted toward the major.

The specific requirements for the geography major are:

I. Geog. 10 and 11 (3, 3), or equivalent; Geog. 30 (3); Geog. 35 (3); Geog. 40 and 41 (3, 3); Geog. 170 (3) and 18 hours in other Geography courses numbered 100 to 199, of which 6 hours must be in non-regional courses; a total of 39 hours in geography.

II. Social Sciences—G. & P. 1 (3); Econ. 31 and 32 (3, 3); History 5 and 6 (3, 3); Soc. 1 and 105 (3, 3); a total of 21 semester hours.

III. Natural Sciences—Botany 1 and 113 or 102 (4, 2 or 3); Agron. 114 or equivalent (4); Chem. 1 (4). Total of 13 (14) semester hours.

IV. English—Eng. 1 and 2 (3, 3) and 3, 4, or 5, 6 (3, 3); Speech 18, 19 (1, 1); a total of 14 semester hours.

V. Foreign Language and Literature—12 semester hours in one language, unless an advanced course is taken.

VI. Military Science, Hygiene, and Physical Activities. The present University requirement is 16 semester hours in Military Science and Physical Activities for able-bodied male students. Women students are required to take 8 semester hours credit in hygiene and physical activities.

A student who elects geography as a major must have earned eighteen semester hours credit in the prerequisite courses in geography prior to beginning the advanced work of the junior year. These are normally taken during the freshman and sophomore years. Only courses in which the student receives a grade of "C" or above will be counted toward the major.

A minor in geography should consist of Geog. 10 and 11 (3, 3), Geog. 30 (3) and such other courses as the major adviser deems suitable.

For the guidance of those who expect to do graduate work in geography, it should be emphasized that the Department of Geography is particularly

interested in the appraisal of natural resources in relation to economic, social and political developments; it aims to encourage study of the natural resource base of the culture of an area. This necessitates, on the one hand, an elementary knowledge of certain of the physical sciences as a basis for the physical aspects of geographic study and resource analysis. On the other hand, a certain amount of knowledge of economics, of sociology and of political organization is necessary in order to understand stages of resource utilization and the social consequences.

The specific courses comprising the student's program of studies should be selected with the aid of a faculty adviser from the Department of Geography in terms of the student's objective and major interests.

Study Program for Geography Majors:

	Semester	
	I	II
<i>Freshman Year</i>		
Geog. 10, 11—General Geography.....	3	3
Chem. 1—Introductory Chemistry.....	4	....
Bot. 1—General Botany.....	....	4
Soc. 1—Sociology of American Life.....	....	3
G. & P. 1—American Government.....	3	....
Eng. 1, 2—Composition and American Literature.....	3	3
Foreign Language.....	3	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 42, 44—Hygiene (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total.....	19-20	19-20
<i>Sophomore Year</i>		
Geog. 30—Principles of Morphology.....	3	....
Geog. 35—Map Reading and Interpretation.....	....	3
Geog. 40—Principles of Meteorology.....	3	....
Geog. 41—Introductory Climatology.....	....	3
Hist. 5, 6—History of American Civilization.....	3	3
Eng. 3, 4 or 5, 6—Composition and Readings in Literature.....	3	3
Foreign Language.....	3	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total.....	16-19	16-19
<i>Junior Year</i>		
Speech 18, 19—Introductory Speech.....	1	1
Bot. 113—Plant Geography.....	2	....
Agron. 114—Soil Geography.....	....	4
Soc. 105—Cultural Anthropology.....	....	3
Econ. 31, 32—Principles of Economics.....	3	3
Geog.—Selection to fit student's needs.....	6	3
Electives, with adviser's consent.....	3	3
Total.....	15	17
<i>Senior Year</i>		
Geog. 170—Local Field Course.....	3	....
Geog.—Selection to fit student's needs.....	6	6
Electives, with adviser's consent.....	6	6
Total.....	15	12

V. GOVERNMENT AND POLITICS

Government and Politics Major and Minor Requirements

In this course of study, the following conditions are to be observed: (1) G. & P. 1, American Government, or its equivalent, is prerequisite to all other courses offered by the Department. Persons taking this course of study must complete G. & P. 1 with a grade of "C" or better. (2) In this curriculum, at least 36 hours of Government and Politics, including G. & P. 1, must be completed. No Government and Politics course with a grade of less than "C" may be counted as a part of these 36 hours. (3) The electives of the junior and senior years are to be chosen from the list suggested below, unless consent to take other courses is obtained from the Head of the Department. Electives in Government and Politics and in related fields are to be chosen to make an integrated course of study.

	Semester	
	I	II
<i>Freshman Year</i>		
G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
Eng. 1, 2—Composition and American Literature.....	3	3
Math. 5, 6 or 10, and 11 or 13—Mathematics.....	3	3
Econ. 4, 5—Economic Developments.....	2	2
Speech 18, 19—Introductory Speech.....	1	1
Foreign Language.....	3	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 42, 44—Hygiene (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total.....	18-19	18-19
<i>Sophomore Year</i>		
G. & P. 4—State Government and Administration.....	3	....
G. & P. 5—Local Government and Administration or Psychology 1 (Introduction to Psychology) or Sociology 53 (Criminology).....	....	3
Eng. 3, 4 or 5, 6—Composition and World or English Literature.....	3	3
Foreign Language.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
H. 5, 6—History of American Civilization.....	3	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total.....	16-19	16-19
<i>Junior Year</i>		
G. & P. 7 or 9, 8 or 10—Comparative Government.....	2	2
G. & P. 110—Public Administration.....	3	....
G. & P. 141—History of Political Theory.....	3	....
G. & P. 174—Political Parties.....	3	....
G. & P. 124—Legislatures and Legislation.....	....	3
G. & P. —(Elective).....	...	3
Electives.....	6	9
Total.....	17	17

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
G. & P. 101—International Political Relations.....	3	....
G. & P. 131-132—Constitutional Law.....	3	3
One full year of advanced Economics or B. A. courses.....	3	3
Electives.....	6	9
Total.....	15	15

Suggested electives: Any G. & P. courses not required above. Any history courses related to the student's integrated course of study.

Econ. 131—Comparative Economic Systems	B. A. 164—Labor Legislation and Court Decisions
Econ. 132—Advanced Economic Principles	B. A. 180, 181—Business Law
Econ. 134—Contemporary Economic Thought	B. A. 189—Business and Government Philosophy
Econ. 140—Money and Banking	155—Logic
Econ. 142—Public Finance and Taxation	Psychology 121, 122—Social Psychology
Econ. 160—Labor Economics	Sociology 52—Criminology
B. A. 130—Elements of Business Statistics	Sociology 147—Sociology of Law
	Sociology 186—Sociological Theory

VI. JOURNALISM AND PUBLIC RELATIONS

The department offers two professional majors: one in editorial journalism, for those who seek beginning news jobs upon graduation; the other in public relations, for those who plan to work in public relations, in public information, or on company publications.

Although a minor is not permitted in this college, a student may take as many as 12 semester hours in a subject or field other than his major. Specialized jobs are most attractive financially. Journalism majors ordinarily elect secondary concentrations in such fields as agriculture, home economics, business administration, advertising, foreign language, science, social and political sciences, psychology, philosophy. Public relations majors choose theirs from business administration, advertising, political and social sciences, psychology, foreign language. Other electives may be approved by the advisor in this department.

Office Techniques may be taken for lower-division elective credit (courses numbered below 100). Since all work in the technical courses of the Department of Journalism and Public Relations is typewritten, those who cannot type at least 35 words per minute should enroll in O. T. 1 before taking Journalism 10. Women planning to seek combination journalism-secretarial or public relations-secretarial jobs upon graduation may take typing and shorthand for lower-division elective credit.

Since 57 hours of upper-division work (courses numbered 100 or more) are required for graduation in this department, the student should use his electives and required courses the first two years to work off all prerequisites for his upper-division studies. No lower-division course can substitute for an upper-division elective.

To enroll in an upper-division course, the student must have accumulated at least 56 hours of academic work (exclusive of R.O.T.C. and Physical Activities), with an over-all grade average of at least 2. (C).

To enroll as an upper-division major in this department, a student must have earned at least C in both Journalism 10 and 11. A major who makes less than a C in an upper-division required course is asked to repeat the course and/or change his major.

A student may declare his major in this department when he enrolls in it at the beginning of any semester, and ordinarily he will be advised from that time until graduation by the same advisor in the department. In no case, however, can one be graduated with a major in this department without having spent at least four semesters as a major in one of its curricula.

Majors are urged to work on a student publication throughout their college residence, and to obtain professional experience in the summers.

The department maintains close working relations with professionals and their organizations in this area. One of the purposes is to provide speakers, trips, laboratories, and other types of training for students enrolled in the department's technical courses. The student is notified in advance of each event, and his participation is required unless it happens to conflict with one of his scheduled classes.

A required part of the journalism major's education consists of training on the Baltimore Sunpapers.

Advanced reporting students spend one afternoon a week with Sun reporters on police and city hall beats; advanced editing students spend one afternoon a week at the central copy desk or at the rewrite desk.

Some journalism majors serve as "stringers" in the special coverage of the campus maintained by the Sunpapers. A \$500 annual *Baltimore Sun* journalism scholarship is available to seniors.

Outside work necessitates enrollment in less than a normal program of study, and in no case should the student attempt to work full time and take more than a course or two.

Listed below are the required curricula in journalism and in public relations. Each curriculum requires a minimum of 33 hours in the department, and not more than 40 hours in the department is permitted.

Lower-division Curricula

(Journalism, Public Relations)

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Geog. 1, 2—Economic Resources and Econ. 4, 5—Economic Developments or foreign language.....	4-3	4-3
Math. 5, 6—General Mathematics and Mathematics of Finance (or natural science).....	3-4	3-4
Speech 18, 19—Introductory Speech (or Speech 1, 2).....	1-2	1-2
Physical Activities (Men and Women).....	1	1
Hygiene (Women).....	2	2
Air Science 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Total.....	18	18

	Semester	
	I	II
<i>Sophomore Year</i>		
Journ. 10, 11—News Reporting I, II.....	3	3
Eng. 3, 4 or 5, 6—Composition and World or English Literature	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
B. A. 10, 11—Organization and Control (or foreign language)...	2-3	2-3
Physical Activities (Men and Women).....	1	1
Air Science 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Total.....	18	18

Journalism Study Program

<i>Junior Year</i>		
Journ. 160—News Editing I.....	3	....
Journ. 163—Newspaper Typography (either semester) .....	....	3
Journ. 176—Newsroom Problems.....	3	....
Journ. 181—Press Photography (either semester).....	....	3
G. & P. 178—Public Opinion.....	3	....
Electives	7	10
Total.....	16	16

<i>Senior Year</i>		
Journ. 161—News Editing II.....	....	3
Journ. 165—Feature Writing. ....	....	3
Journ. 175—Reporting of Public Affairs.....	3	....
Journ. 191—Law of the Press.....	....	3
Journ. 192—History of American Journalism.....	3	....
B. A. 189—Business and Government (either semester).....	3	....
Electives.....	7	7
Total.....	16	16

Public Relations Study Program

Requirements for the first two years of the public relations curriculum are the same as those in the journalism program (see above).

The following curriculum is taken in the junior and senior years by the average public relations student who plans to work for a public relations firm or in a public relations department.

For electives preparatory to public relations work in business, the student should look to at least the following fields: business administration, advertising, economics, business statistics, personnel management, and marketing. For government public relations work: public administration, American history, international relations, political parties, etc. Good elective courses for any public relations major may be found in psychology, sociology, speech, English, radio, and education.

	Semester	
	I	II
<i>Junior Year</i>		
Journ. 160—News Editing I.....	3	....
Journ. 165—Feature Writing (either semester).....	....	3
P. R. 166—Public Relations.....	3	....
Journ. 181—Press Photography (either semester).....	3	....
P. R. 194—Public Relations Cases.....	....	2
Electives.....	7	11
Total.....	16	16

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
P. R. 170—Publicity Techniques.....	3	....
P. R. 171—Industrial Journalism.....	2	....
P. R. 186—Public Relations of Government.....	....	3
Journ. 191—Law of the Press.....	....	3
P. R. 195—Seminar in Public Relations.....	....	2
G. & P. 178—Public Opinion.....	3	....
Electives.....	8	8
Total.....	16	16

VII. OFFICE TECHNIQUES AND MANAGEMENT

1. Office Management

With the rapidly mounting volume of office work now being done, and the rapid increase in the number of office workers required to do it, effective office management and supervision is needed. Despite the current popular opinion that the office manager needs to know only a number of systems and machines, there is an ever-growing group of executives who believe that the management and supervision of an office is quite as important a job as the management of a factory or any other industrial enterprise.

Any young man or woman entering business need have no hesitancy in preparing himself for the position of office manager, for that position has proved a stepping stone to positions of great responsibility for many of our present executives.

The student interested in this field will find the following required courses with the suggested electives under the guidance of the adviser, a valuable aid in preparing for positions in this field.

Office Administration Study Program

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Geog. 1, 2—Economic Resources.....	2	2
Eng. 1, 2—Composition and American Literature.....	3	3
B. A. 10, 11—Organization and Control.....	2	2
Math. 5—General Mathematics.....	3	....
Math. 6—Mathematics of Finance.....	....	3
G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
O. T. 1—Principles of Typewriting.....	2	....
O. T. 2—Intermediate Typewriting.....	....	2
A S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Hea. 2, 4—Personal and Community Health (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total.....	18-19	18-19

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
B. A. 20, 21—Principles of Accounting.....	4	4
Speech 18, 19—Introductory Speech.....	1	1
H. 5, 6—History of American Civilization.....	3	3
O. T. 10—Office Typewriting Problems.....	2	....
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total.....	17-19	15-18

<i>Junior Year</i>		
Psych. 1—Introduction to Psychology.....	3	....
Econ. 140—Money and Banking.....	3	....
Econ. 150—Principles of Marketing.....	3	....
Econ. 160—Labor Economics.....	3	....
B. A. 112—Records Management.....	2	....
B. A. 121—Cost Accounting.....	....	4
B. A. 130—Elements of Business Statistics.....	....	3
B. A. 150—Marketing Management.....	....	3
B. A. 160—Personnel Management.....	....	3
B. A. 114—Machines Management.....	....	3
Electives.....	2	....
Total.....	16	16

<i>Senior Year</i>		
B. A. 165—Office Management.....	3	....
B. A. 166—Business Communications.....	3	....
B. A. 169—Industrial Management.....	3	....
B. A. 180, 181—Business Law.....	4	4
B. A. 168—Advanced Office Management.....	....	3
Electives in Accounting, Marketing, Real Estate, Insurance, Finance, and Transportation.....	3	8
Total.....	16	15

2. Office Techniques

The purpose of this curriculum is not only to furnish merely technical or vocational training, but also, to aid the student in developing his natural aptitudes for secretarial and administrative positions. The development of the student's capacity to plan, organize, direct, and execute is the guiding principle followed in this curriculum. This program of study will appeal to the young man or woman who is ambitious, naturally capable, and willing to work. It will also appeal to those who realize that positions in secretarial service require much more than merely skill in typewriting and stenography. These are essential tools, but knowledge and skill in other subjects are as important for the more responsible positions.

Placement Examination

Students with one or more years of college, high school, or equivalent training in shorthand and/or typewriting are required to take a placement examination in those subjects at the time of their first registration in a shorthand or typewriting course at the University.

Credit will be given only for the work done in residence.

Record of Competency

Students must make a grade of "C" in each course in the Office Techniques sequence before they may progress to the next advanced course. A major earning less than a C grade in an advanced course, is asked to repeat the course.

The following program of study is designed to give the capable student an opportunity to develop his potential aptitudes to an effective end.

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
B. A. 10, 11—Organization and Control.....	2	2
Speech 18, 19—Introductory Speech.....	1	1
Math. 5, 6—General Mathematics and Mathematics of Finance....	3	3
O. T. 1—Principles of Typewriting*.....	2	....
O. T. 2—Intermediate Typewriting.....	....	2
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Hea. 2, 4—Personal & Community Health (Women).....	2	2
Physical Activities (Men and Women).....	1	1
Total.....	17-18	17-18

<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
O. T. 12, 13—Principles of Shorthand I, II.....	4	4
O. T. 10—Office Typewriting Problems.....	2	....
Econ. 4, 5—Economic Developments.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities (Men and Women).....	1	1
Total.....	18-21	16-17

<i>Junior Year</i>		
B. A. 20, 21—Principles of Accounting.....	4	4
O. T. 116—Advanced Shorthand†.....	3	....
O. T. 117—Gregg Transcription†.....	2	....
O. T. 118—Gregg Shorthand Dictation.....	....	3
B. A. 166—Business Communications.....	....	3
B. A. 114—Machines Management.....	3	....
B. A. 112—Records Management.....	2	....
Econ. 140—Money and Banking.....	....	3
Econ. 160—Labor Economics.....	3	....
B. A. 160—Personnel Management.....	....	3
Total.....	17	16

*O. T. 1 should be completed prior to enrollment in Principles of Shorthand 1 (O. T. 12).

†O. T. 116, Advanced Shorthand, and O. T. 117, Gregg Transcription must be taken concurrently. O. T. 16 should be completed prior to O. T. 116, Advanced Shorthand.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
O. T. 110—Secretarial Work.....	3	....
O. T. 114—Secretarial Office Practice.....	....	3
B. A. 165—Office Management.....	3	....
B. A. 168—Advanced Office Management.....	....	3
E. A. 180, 181—Business Law.....	4	4
Electives.....	3	6
B. A. 150a—Marketing Principles and Operation.....	3	....
Total.....	16	16

Combined Secretarial Training and Business Teaching Curriculum

Capable students may elect courses offered by the College of Education in such a manner as to qualify themselves for commercial teaching in high schools.

VIII. BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is recognized as the laboratory for the practical study of business and economic problems. As such, it has three principal functions: first, to train students in the field of business and economic research; second, to disseminate information concerning business and economic conditions in Maryland, or which affect Maryland interests, and third, to give active research assistance to interested business firms, governmental units, and citizen groups.

Through the facilities of the Bureau qualified interested students can obtain practical experience in research work. This involves the application of techniques and principles studied in the class room to actual business and governmental problems.

The Bureau—through its direct contact with business, government, labor and the professions and in its research into problems in these fields—serves as an important source of information relative to business and economic conditions and developments in this region. This information is made available, in part, by means of Bureau publications and, in part, by direct inquiry to the Bureau. This service is supplemented by active cooperation with individual business firms and citizen organizations within the state who request assistance in the study of specific problems which are recognized as having an important bearing upon community welfare. The Bureau welcomes the opportunity to be of real service to such organizations.

IX. BUREAU OF GOVERNMENTAL RESEARCH

The Bureau of Governmental Research was organized in 1947, then called the Bureau of Public Administration. It is closely allied, both in function and personnel, with the Department of Government and Politics. The Department of Government and Politics is the teaching agency; the Bureau of Governmental Research is the research agency. The Bureau's activities relate primarily to the problems of state and local government in Maryland. The Bureau engages

in research and publishes research findings with reference to local, state and national government. It undertakes surveys and offers its assistance and service to units of government in Maryland. Finally, it serves as a clearing house of information for the benefit of Maryland state and local government. The Bureau furnishes an opportunity for qualified interested students to secure practical experience in research in government problems.

X. MARYLAND MUNICIPAL LEAGUE

The office of the Maryland Municipal League, an organization of Maryland cities, is located in the College of Business and Public Administration. The League provides opportunities for association to municipal officials, offers services to city governments and organizes legislative programs affecting municipal affairs. It publishes monthly the *Maryland Municipal News*. The League's mailing address is: Maryland Municipal League, Box 276, College Park, Maryland.

COURSE OFFERINGS

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee, will be charged for transfer to another course.

Courses are designated by numbers as follows:

1 to 99: courses for undergraduates.

100 to 199: courses for advanced undergraduates and graduates. Not all courses numbered 100 to 199 may be taken for graduate credit.

200 to 299: courses for graduates only.

A course with a single number extends through one semester. A course with a double number extends through two semesters. Courses not otherwise designated are lecture courses. The number of hours' credit is shown by the arabic numeral in parentheses after the title of the course. A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

BUSINESS ORGANIZATION AND ADMINISTRATION

Professors Frederick, Calhoun, Clemens, Cook, Cover, Fisher, Mounce, Pyle, Reid, Sweeney, Sylvester, Taff, Watson, Wedeberg, Wright; Associate Professors Gentry, Dawson; Assistant Professors Daiker, Goodell, Lee, Nelson, Phillips; Instructors Cluse, Edelson, Kappler.

B.A. 10, 11. Organization and Control (2, 2).

First and second semesters. Required in all Bus. Adm. curriculums. A survey course treating the internal and functional organization of a business enterprise. B.A. 11 includes industrial management, organization and control.

B.A. 20, 21. Principles of Accounting (4, 4).

First and second semesters. Required in all Business Organization curriculums. Prerequisite, Sophomore standing. The fundamental principles and problems involved in accounting for proprietorships, corporations and partnerships.

For Advanced Undergraduates and Graduates

B.A. 110, 111. Intermediate Accounting (3, 3).

First and second semesters. Prerequisite, a grade of B or better in B.A. 21 for majors in accounting or consent of instructor. A comprehensive study of the theory and problems of valuation of assets, application of funds, corporation accounts and statements, and the interpretation of accounting statements.

B.A. 112. Records Management (2).

First and second semesters. Prerequisite, junior standing. Laboratory fee, \$7.50. Specific management methods and techniques, that have proved valuable in the creation, use, maintenance, protection and disposition of records, are studied.

B.A. 114. Machines Management (3).

First and Second Semesters. Prerequisite, junior standing. Laboratory fee, \$7.50. Mechanization has complicated the problem of managing office activities. This course is devoted to the study of the management and utilization of modern office machines.

B.A. 116. Public Budgeting (3).

Prerequisites, B.A. 21 and Econ. 32. A study of budgetary administration in the United States, including systems of financial control and accountability, the settlement of claims, centralized purchasing and the reporting of financial operations.

B.A. 118. Governmental Accounting (3).

Prerequisite, B.A. 111, or consent of instructor. The content of this course covers the scope and functions of governmental accounting. It considers the principles generally applicable to all forms and types of governmental bodies and a basic procedure adaptable to all governments.

B.A. 121. Cost Accounting (4).

Prerequisite, a grade of B or better in B.A. 21 for majors in accounting or consent of instructor. A study of the fundamental procedures of cost accounting, including those for job order, process and standard cost accounting systems.

B.A. 122. Auditing Theory and Practice (3).

First semester. Prerequisite, B.A. 111. A study of the principles and problems of auditing and application of accounting principles to the preparation of audit working papers and reports.

B.A. 123. Income Tax Accounting (4).

Prerequisite, a grade of B or better in B.A. 21 for majors in accounting, or consent of instructor. A study of the important provisions of the Federal Tax Law, using illustrative examples, selected questions and problems, and the preparation of returns.

B.A. 124, 126. Advanced Accounting (3, 3).

First and second semesters. Prerequisite, B.A. 111. Advanced accounting theory applied to specialized problems in partnerships, estates and trusts, banks, mergers and consolidations, receiverships and liquidations; also budgeting and controllership.

B.A. 125. C.P.A. Problems (3).

Second semester. Prerequisite, B.A. 124, or consent of instructor. A study of the nature, form and content of C.P.A. examinations by means of the preparation of solutions to, and an analysis of, a large sample of C.P.A. problems covering the various accounting fields.

B.A. 127. Advanced Auditing Theory and Practice (3).

Second semester. Prerequisite, B.A. 122. Advanced auditing theory, practice and report writing.

B.A. 128. Advanced Cost Accounting (2).

Prerequisite, B.A. 121. A continuation of basic cost accounting with special emphasis on process costs, standard costs, joint costs and by-product costs.

B.A. 129. Apprenticeship in Accounting (0).

Prerequisites, minimum of 20 semester hours in accounting and the consent of the accounting staff. A period of apprenticeship is provided with nationally known firms of certified public accountants from about January 15 to February 15, and for a semester after graduation.

B.A. 130. Elements of Business Statistics (3).

Prerequisite, Junior standing. Required for graduation. Laboratory fee, \$3.50. This course is devoted to a study of the fundamentals of statistics. Emphasis is placed upon the collection of data; hand and machine tabulation; graphic charting; statistical distribution; averages; index numbers; sampling; elementary tests of reliability and simple correlations.

B.A. 132, 133. Advanced Business Statistics (3, 3).

First and second semesters. Prerequisite, B.A. 130. Laboratory fee, \$3.50 for each course. The use of statistical methods and techniques in economic studies and in the fields of business and public administration. Advanced methods of correlation and other selected techniques are applied to statistical analyses of economic fluctuations, price changes, cost analysis, and market demand indexes and functions.

B.A. 140. Financial Management (3).

Prerequisite, B.A. 21 and Econ. 140. This course deals with principles and practices involved in the organization, financing, and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk, and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

B.A. 141. Investment Management (3).

First semester. Prerequisite, B.A. 140. A study of the principles and methods used in the analysis, selection, and management of investments; investment programs, sources of investment information, security price movements, government, real estate, public utility, railroad, and industrial securities.

B.A. 142. Banking Policies and Practices (3).

Second semester. Prerequisite, Econ. 140. A study of the organization and management of the Commercial Bank, the operation of its departments, and the methods used in the extension of commercial credit.

B.A. 143. Credit Management (3).

First and second semesters. Prerequisite, B.A. 140. A study of the nature of credit and the principles applicable to its extension and redemption for mercantile and consumer purposes; sources of credit information and analysis of credit reports; the organization and management of a credit department for effective control. Recent developments and effective legal remedies available.

B.A. 148. Advanced Financial Management (3).

Second semester. Prerequisite, B.A. 140. Advanced course designed for students specializing in finance. Emphasis is placed upon the techniques employed by executives in their application of financial management practice to selected problems and cases. Critical classroom analysis is brought to bear upon actual methods and techniques used by business enterprises.

B.A. 149. Analysis of Financial Statements (3).

Prerequisites, B.A. 21, B.A. 140. Analysis of financial statements for the guidance of executives, directors, stockholders, and creditors, valuation of balance sheet items; determination and interpretation of ratios.

B.A. 150. Marketing Management (3).

Prerequisite, B.A. 150a. A study of the work of the marketing division in a going organization. The work of developing organizations and procedures for the control of marketing activities are surveyed. The emphasis throughout the course is placed on the determination of policies, methods, and practices for the effective marketing of various forms of manufactured products.

B.A. 150a. Marketing Principles and Organization (3).

Prerequisite, Econ. 32 or 37. This is an introductory course in the field of marketing. Its purpose is to give a general understanding and appreciation of the forces operating, institutions employed, and methods followed in marketing agricultural products, natural products, services, and manufactured goods.

B.A. 151. Advertising (3).

First semester. Prerequisite, B.A. 150. A study of the role of advertising in the American economy; the impact of advertising on our economic and social life, the methods and techniques currently applied by advertising practitioners, the role of the newspaper, magazine, and other media in the development of an advertising campaign, modern research methods to improve the effectiveness of advertising, and the organization of the advertising business.

B.A. 152. Advertising Copy and Layout (3).

Second semester. Prerequisite, B.A. 151, and senior standing. A study of the practices and techniques of copy writing and layout. The student will participate in exercises designed to teach him the essential principles of writing copy for various media and presenting ideas in visual form. The course deals with the development of ideas rather than art forms.

B.A. 153. Purchasing Management (3).

First semester. Prerequisites, B.A. 150 and senior standing. Studies the problems of determining the proper sources, quality and quantity of supplies, and of methods of testing quality; price policies, price forecasting, forward buying, bidding and negotiation; budgets and standards of achievement. Particular attention is given to government purchasing and methods and procedures used in their procurement.

B.A. 154. Retail Store Management (3).

First semester. Prerequisite, B.A. 150 and senior standing. Retail store organization, location, layout and store policy; pricing policies, price lines, brands, credit policies, records as a guide to buying; purchasing methods; supervision of selling; training and supervision of retail sales force; and administrative problems.

B.A. 155. Problems in Retail Merchandising (3).

Second semester. Prerequisite, B.A. 154. Designed to develop skill in the planning and control of merchandise stocks. Deals with buying policies, pricing, dollar and unit control procedures, mark-up and mark-down policies, merchandise budgeting, and the gross margin-expense-net earnings relationships.

B.A. 157. Foreign Trade Procedure (3).

Prerequisite, B.A. 150 and senior standing. Functions of various exporting agencies; documents and procedures used in exporting and importing transactions. Methods of procuring goods in foreign countries; financing of import shipments; clearing through the customs districts; and distribution of goods in the United States.

B.A. 158. Advertising Campaigns (3).

Second semester. Prerequisites, B.A. 151 and B.A. 152. This course is devoted to the application of advertising skills for the purpose of conducting advertising campaigns scaled to specific marketing needs and financial resources. It combines sound principles with laboratory techniques; familiarizes the student with the price structure, technical needs, and problems of effective presentation for newspapers, magazines, radio, television, and other media.

B.A. 159. Newspaper Advertising (3).

Second semester. Prerequisite, B.A. 151. A study of the problems of newspaper advertising with special attention to the needs of retail business. The course covers layout, production methods, sales techniques, and classified advertising. Students are encouraged to work in the advertising departments of campus and nearby publications for actual experience.

B.A. 160. Personnel Management (3).

Prerequisite, Econ. 160. This course deals with the problems of directing and supervising employees under modern industrial conditions. Two phases of personnel administration are stressed, the application of scientific management and the importance of human relation in this field.

B.A. 163. Industrial Relations (3).

Second semester. Prerequisite, Econ. 160 and senior standing. A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation, and conciliation; collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation, and injunctions.

B.A. 164. Recent Labor Legislation and Court Decisions (3).

First semester. Prerequisite, B.A. 160 and senior standing. Case method analysis of the modern law of industrial relations. Cases include the decisions of administrative agencies, courts and arbitration tribunals.

B.A. 165. Office Management (3).

First and second semesters. Prerequisite, junior standing. Considers the application of the principles of scientific management in their application to office work.

B.A. 166. Business Communications (3).

First and second semesters. Prerequisite, junior standing. A systematic study of the principles of effective written communications in business. The fundamental aim is to develop the ability to write clear, correct, concise, and persuasive business letters and reports.

B.A. 167. Job Evaluation and Merit Rating (2).

First semester. Prerequisite, B.A. 160, B.A. 169 and Senior standing. The investigation of the leading job evaluation plans used in industry, study of the development and administrative procedures, analyzing jobs and writing job descriptions, setting up a job evaluation plan, and relating job evaluation to pay scales. Study of various employee merit rating programs, the methods of merit rating, and the uses of merit rating.

B.A. 168. Advanced Office Management (3).

Second semester. Prerequisite, B.A. 165 and senior standing. A study of the policies, systems, practices used to promote the effective utilization of the office functions. Among the subjects studied will be organization, standards determination, procedures, scheduling, layout, and process charting. The above techniques will be used in analyzing, evaluating, and improving the office methods found in several actual business cases.

B.A. 169. Industrial Management (3).

Both semesters. Prerequisite, B.A. 11. Studies the operation of a manufacturing enterprise. Among the topics covered are product development, plant location, plant layout, production planning and control, methods analysis, time study, job analysis, budgetary control, standard costs, and problems of supervision.

B.A. 170. Transportation Services and Regulation (3).

Prerequisite, Econ. 32 or 37. A general course covering the five fields of transportation, their development, service and regulation. (This course is a prerequisite for all other transportation courses.)

B.A. 171. Industrial and Commercial Traffic Management (3).

Prerequisite, B.A. 170. Covers the details of classification and rate construction for ground and air transportation. Actual experiences in handling tariffs and classifications is provided. It is designed for students interested in the practical aspects of shipping and receiving and is required for all majors in Transportation Administration.

B.A. 172. Motor Transportation (3).

Prerequisite, B.A. 170. The place of the motor transport industry, development, uses in distribution, competitive situations, organization, regulation.

B.A. 173. Overseas Shipping (3).

Prerequisite, B.A. 170. The ocean carrier, development of services, types, trade routes, company organization, ship brokers and freight forwarders, the American Merchant Marine as a factor in national activity.

B.A. 174. Commercial Air Transportation (3).

Prerequisite, B.A. 170. The air transportation system of the United States; airways, airports, airlines. Federal regulation of air transportation. Problems and services of commercial air transportation; economics, equipment, operations, financing, selling of passenger and cargo services. Air mail development and services.

B.A. 175. Airline Administration (3).

Prerequisite, B.A. 174. Practices, systems and methods of airline management;

actual work in handling details and forms required in planning and directing maintenance, operations, accounting and traffic transactions, study of airline operations and other manuals of various companies.

B.A. 176. Problems in Airport Management (3).

Prerequisite, B.A. 174. Airports classified, aviation interests and community needs, airport planning, construction, building problems. Airports and the courts. Management, financing, operations, revenue sources.

B.A. 177. Motion Economy and Time Study (3).

Second semester. Prerequisite, B.A. 169 and Senior standing. A study of the principles of motion economy, simo charts, micromotion study, the fundamentals of time study, job evaluation, observations, standard times, allowances, formula construction and wage payment plans.

B.A. 178. Production Planning and Control (2).

First semester. Prerequisite, B.A. 169 and Senior standing. An analysis of the man-, material-, and machine requirements for production according to the several types of manufacture. The development and application of inventory records, load charts, production orders, schedules, production reports, progress reports and control reports. One lecture period and one laboratory period each week.

B.A. 179. Problems in Supervision (3).

Prerequisite, B.A. 160, B.A. 169 and Senior standing. A case study course in problems of management and administration with emphasis upon analysis and reasoning applied toward a solution.

B.A. 180, 181. Business Law (4, 4).

First and second semesters. Prerequisite, senior standing. Required in all Bus. Org. curriculums. Legal aspects of business relationships, contracts, negotiable instruments, agency, partnerships, corporations, real and personal property, and sales.

B.A. 184. Public Utilities (3).

Prerequisite, Econ. 32 or 37 and senior standing. Using the regulated industries as specific examples attention is focused on broad and general problems in such diverse fields as constitutional law, administrative law, public administration, government control of business, advanced economic theory, accounting, valuation and depreciation, taxation, finance, engineering and management.

B.A. 189. Business and Government (3).

Second semester. Prerequisite, Econ. 32 or 37. Senior standing. A study of the role of government in modern economic life. Social control of business as a remedy for the abuses of business enterprise arising from the decline of competition. Criteria of and limitations on government regulation of private enterprise.

B.A. 190. Life Insurance (3).

First semester. Prerequisite, Econ. 32 or 37. A general survey of life insurance: its institutional development, selection of risks, mathematical calculations, contract provisions, kinds of policies, their functional uses, industrial and group contracts and government supervision.

B.A. 191. Property Insurance (3).

Second semester. Prerequisite, Econ. 32 or 37. A study of the insurance coverages written to protect individuals and businesses; fire, extended coverage, business interruption, automobile, liability, fidelity, surety, inland marine and ocean marine. Hazards, rate-making, legal principles, standard forms, and business practices are discussed.

B.A. 194. Insurance Agency Management (3).

First semester. Prerequisite, B.A. 190 or 191. This course deals with the more practical problems and policies of the insurance agent, manager, or broker; the management of his own organization and its relations with the public and home offices. Advanced topics in life insurance and additional coverages in property insurance are considered also.

B.A. 195. Real Estate Principles (3).

First semester. Prerequisite, Econ. 32 or 37. The course covers the nature and uses of real estate, real estate as a business, basic legal principles, construction problems and home ownership, city planning, and public control and ownership of real estate.

B.A. 196. Real Estate Finance (3).

Second semester. Prerequisite, Econ. 32 or 37. This course includes consideration of the factors influencing real estate values, methods and techniques in the general appraisal of real estate by brokers and professional appraisers, and general problems in real estate financing.

B.A. 197. Real Estate Management (3).

Second semester. Prerequisite, B.A. 195 or 196. A study of mortgage banking in its relation to real estate operations, various financial institutions, and the general economy; and a study of real property management with its responsibilities to owners, tenants, employees, and the public.

For Graduates**B.A. 210. Advanced Accounting Theory (2-3).**

Prerequisite B.A. 111 and graduate standing.

B.A. 220. Managerial Accounting (3).**B.A. 221, 222. Seminar in Accounting.**

(Arranged.)

B.A. 226. Accounting Systems (3).**B.A. 228. Research in Accounting.**

(Arranged.)

B.A. 229. Studies of Special Problems in the Fields of Control and Organization.

(Arranged.)

B.A. 240. Seminar in Financial Management (1-3).

Prerequisites, Ec. 140, B.A. 21, B.A. 140.

B.A. 249. Studies of Special Problems in the Field of Financial Administration.

(Arranged.)

B.A. 250. Problems in Sales Management (3).

B.A. 251. Problems in Advertising (3).

B.A. 252. Problems in Retail Store Management (3).

B.A. 257. Seminar in Marketing Management.

(Arranged.)

B.A. 258. Research Problems in Marketing.

(Arranged.)

B.A. 262. Seminar in Contemporary Trends in Labor Relations.

(Arranged.)

B.A. 265. Development and Trends in Industrial Management (3).

B.A. 266. Research in Personal Management.

(Arranged.)

B.A. 267. Research in Industrial Relations.

(Arranged.)

B.A. 269. Studies in Special Problems in Employer-Employee Relationships.

(Arranged.)

B.A. 270. Seminar in Air Transportation (3).

B.A. 271. Theory of Organization (3).

B.A. 275. Seminar in Motor Transportation (3).

B.A. 277. Seminar in Transportation (3).

B.A. 280. Seminar in Business and Government Relations.

(Arranged.)

B.A. 284. Seminar in Public Utilities (3).

B.A. 290. Seminar in Insurance (3).

B.A. 295. Seminar in Real Estate (3).

B.A. 299. Thesis.

(Arranged.)

ECONOMICS

Professors Dillard, Gruchy; Lecturer Johnson; Associate Professors Grayson, Gurley, Hamberg; Assistant Professors Dalton, Measday, Smith, Yeager; Instructors Dawson, Leary, Shelby.

Econ. 4, 5. Economic Developments (2, 2).

First and second semesters. Freshman requirements in Business Administration Curriculums. An introduction to modern economic institutions—their origins, development, and present status. Commercial revolution, industrial revolution, and age of mass production. Emphasis on developments in England, Western Europe and the United States. (Dillard and Staff.)

Econ. 31, 32. Principles of Economics (3, 3).

First and second semesters. Prerequisite, sophomore standing. Required in the Business Administration Curriculums. A general analysis of the functioning of the economic system. A considerable portion of the course is devoted to a study of basic concepts and explanatory principles. The remainder deals with the major problems of the economic system. (Grayson and Staff.)

Econ. 37. Fundamentals of Economics (3).

First and second semesters. Not open to students who have credit in Econ. 31 and 32. Not open to freshmen or to B. P. A. students. A survey of the general principles underlying economic activity. Designed to meet the needs of special technical groups such as students of Engineering, Home Economics, Agriculture and others who are unable to take the more complete course provided in Economics 31 and 32. (Smith and Staff.)

For Advanced Undergraduates and Graduates

Econ. 131. Comparative Economic Systems (3).

First and second semesters. Prerequisite, Econ. 32 or 37. An investigation of the theory and practice of various types of economic systems. The course begins with an examination and evaluation of the capitalistic system and is followed by an analysis of alternative types of economic systems such as fascism, socialism, and communism. (Gruchy.)

Econ. 132. Advanced Economic Principles (3).

First and second semesters. Prerequisite, Econ. 32. Required for Economics majors. This course is an analysis of price and distribution theory with special attention to recent developments in the theory of imperfect competition. (Grayson.)

Econ. 134. Contemporary Economic Thought (3).

First semester. Prerequisite, Econ. 32 and senior standing. A survey of recent trends in American, English, and Continental Economic thought with special attention to the work of such economists as W. C. Mitchell, J. R. Commons, T. Veblen, W. Sombart, J. A. Hobson and other contributors to the development of economic thought since 1900.

(Gruchy.)

Econ. 136. International Economic Policies and Relations (3).

First semester. Prerequisite, Econ. 32 or 37. A descriptive and theoretical analysis of international trade. Full consideration is given to contemporary problems facing international trade and to the impact of governmental policy upon international commercial relations.

(Yeager.)

Econ. 137. The Economics of National Planning (3).

Second semester. Prerequisite, Econ. 32 or 37. An analysis of the principles and practice of economic planning with special reference to the planning problems of Great Britain, Russia, and the United States.

(Gruchy.)

Econ. 140. Money and Banking (3).

First and second semesters. Prerequisite, Econ. 32 or 37. A study of the organization, functions, and operation of our monetary, credit, and banking system; the relation of commercial banking to the Federal Reserve System; the relation of money and credit to prices; domestic and foreign exchange, and the impact of public policy upon banking and credit.

(Gurley and Staff.)

Econ. 141. Theory of Money, Credit, and Prices (3).

Second semester. Prerequisites, Econ. 32 and 140. A study of recent domestic and international monetary policies, their objectives and theoretical foundations.

(Gurley.)

Econ. 142. Public Finance and Taxation (3).

First and second semesters. Prerequisite, Econ. 32 or 37. A study of government fiscal policy with special emphasis upon sources of public revenue, the tax system, government budgets, and the public debt.

(Grayson.)

Econ. 147. Business Cycles (3).

First semester. Prerequisite, Econ. 140. A study of the causes of depressions and unemployment, cynical and secular instability, theories of business cycles, and the problem of controlling economic instability.

(Hamberg.)

Econ. 149. International Finance and Exchange (3).

Second semester. Prerequisite, Econ. 140, Econ. 136 and 141 recommended. This course considers the theory and practice of international finance and exchange. The increased importance of public authority in foreign trade, international policies, and finance is given due emphasis.

(Yeager.)

Econ. 160. Labor Economics (3).

First and second semesters. Prerequisite, Econ. 32 or 37. The historical development and chief characteristics of the American labor movement are first surveyed. Present-day

problems are then examined in detail: wage theories, unemployment, social security, labor organization, and collective bargaining. (Dalton, Measday, Smith.)

Econ. 170. Monopoly and Competition (3).

Second semester. Prerequisite, Econ 32 or 37. Changing structure of the American economy; price policies in different industrial classifications of monopoly and competition in relation to problems of public policy. (Smith.)

Econ. 171. Economics of American Industries (3).

Second semester. Prerequisite, Econ. 32 or 37. A study of the technology, economics and geography of twenty representative American industries. (Clemens.)

For Graduates

Econ. 200. Micro-Economic Analysis (3).

Second semester. Prerequisite, Econ. 132. Price, output, and distribution analysis as developed by Chamberlin, Triffin, Hicks, and others; econometric methods, including Leontief input-output techniques of inter-industry analysis. Considerable attention is given to contributions in periodicals. (Grayson.)

Econ. 202. Macro-Economic Analysis (3).

First semester. Prerequisite, Econ. 132. National income accounting; determination of national income and employment especially as related to the modern theory of effective demand; consumption function; multiplier and acceleration principles; the role of money as it affects output and employment as a whole; cynical fluctuations. (Dillard.)

Econ. 204, 205. Seminar in Economic Development (3, 3).

First and second semesters. Historical and theoretical analysis of the major factors which influence economic development; comparisons between more developed and less developed areas; policies and techniques which hasten economic development. (Johnson.)

Econ. 230. History of Economic Thought (3).

First semester. Prerequisite, Econ. 132 or consent of instructor. A study of the development of economic thought and theories including the Greeks, Romans, canonists, mercantilists, physiocrats, Adam Smith, Malthus, Ricardo. Relation of ideas to economic policy. (Dillard.)

Econ. 231. Economic Theory in the Nineteenth Century (3).

Second semester. Prerequisite, Econ. 230 or consent of the instructor. A study of various nineteenth and twentieth century schools of economic thought, particularly the classicists, neo-classicists, Austrians, German historical school, American economic thought and the socialists. (Dillard.)

Econ. 232, 233. Seminar in Institutional Economic Theory (3, 3).

First and second semesters. A study of recent developments in the field of institutional economic theory in the United States and abroad. (Gruchy.)

Econ. 236. Seminar in International Economic Relations (3).

(Arranged.) A study of selected problems in International Economic Relations.

Econ. 237. Seminar in Economic Investigation (3).**Econ. 240. Seminar in Monetary Theory and Policy (3).**

Theories of money, prices, and national income with emphasis on recent developments. Monetary theories of income fluctuations. Domestic and international monetary policies. (Gurley.)

Econ. 247. Economic Growth and Instability (3).

Second semester. An analytical study of long-term economic growth in relation to short-term cyclical instability. Attention is concentrated on the connection between accumulation of capital and the capital requirements of secular growth and business cycles. Earlier writings as well as recent growth models are considered. (Hamberg.)

Econ. 270. Seminar in Economics and Geography of American Industries (3).

(Arranged.)

(Clemens.)

Econ. 299. Thesis.

(Arranged.)

GEOGRAPHY

Professors Van Royen, Hu; Consulting Professors Roterus, Whipple; Lecturers with rank of Professor Lemons, McBryde; Associate Professors Patton, Augelli; Assistant Professor Karinen; Instructors Chang, Deshler, Sas; Research Associate Battersby; Research Assistants Kelley, Langen and Merrens.

Geog. 1, 2. Economic Resources (2, 2).

First and second semesters. One lecture and one two-hour laboratory period a week for Geog. 1; two lecture periods for Geog. 2. Freshman requirements in the Business Administration Curriculums. General comparative study of the geographic factors underlying production economics. Emphasis upon climate, soils, land forms, agricultural products, power resources, and major minerals, concluding with brief survey of geography of commerce and manufacturing. (Patton and Staff.)

Geog. 10, 11. General Geography (3, 3).

First and second semesters. Required of all majors in geography; recommended for all minors; Geog. 10 is suggested for students of Arts and Sciences, Education and others who may desire a background in geography and its application to problems of their respective fields. Introduction to geography as a field of study. A survey of the content, philosophy, techniques, and application of geography and its significance for the understanding of world problems. (Augelli.)

Geog. 20, 21. Economic Geography (3, 3).

(Not offered on College Park campus.)

Geog. 30. Principles of Morphology (3).

First semester. A study of the physical features of the earth's surface and their geographic distribution, including subordinate land forms. Major morphological processes, the development of land forms, and the relationships between various types of land forms and land use problems. (Van Royen.)

Geog. 35. Map Interpretation and Map Problems (3).

First or second semester. Interpretation of landforms and man-made features on American and foreign maps. Functions, use, and limitations of various types of maps, with emphasis upon topographic maps. Problems of use and interpretation.

Geog. 40. Principles of Meteorology (3).

First semester. An introductory study of the weather. Properties and conditions of the atmosphere, and methods of measurement. The atmospheric circulation and conditions responsible for various types of weather and their geographic distribution patterns. Practical applications. (Sas.)

Geog. 41. Introductory Climatology (3).

Second semester. Prerequisite, Geog. 40, or permission of the instructor. Climatic elements and their controls, the classification and distribution of world climates and relevance of climatic differences to human activities. (Sas.)

Geog. 42S. Weather and Climate (2).

Summer only. Permission of instructor. An introduction to the principal causes of the weather and the major types of climate, with special emphasis upon North America.

Geog. 100. Regional Geography of Eastern Anglo-America (3).

First semester. Prerequisite, Geog. 1, 2 or Geog. 10, or permission of the instructor. A study of the cultural and economic geography and the geographic regions of Eastern United States and Canada, including an analysis of the significance of the physical basis for present-day diversification of development, and the historical geographic background. (Patton.)

Geog. 101. Regional Geography of Western Anglo-America (3).

Second semester. Prerequisite, Geog. 1, 2 or Geog. 10, or permission of the instructor. A study of Western United States, Western Canada and Alaska along the lines mentioned under Geog. 100. (Patton.)

Geog. 102S. Geography of the United States (2).

Summer only. Permission of instructor. A general study of the regions and resources of the United States in relation to agricultural and industrial development and to present-day national problems.

Geog. 103. Geographic Concepts and Source Materials (2).

First semester. A comprehensive and systematic survey of geographic concepts designed exclusively for teachers. Stress will be placed upon the philosophy of geography in relation to the social and physical sciences, the use of the primary tools of geography, source materials, and the problems of presenting geographic principles.

Geog. 104. Geography of Major World Regions (2).

Second semester. A geographic analysis of the patterns, problems, and prospects of the world's principal human-geographic regions, including Europe, Anglo-America, the Soviet Union, the Far East, and Latin America. Emphasis upon the causal factors of differentiation and the role geographic differences play in the interpretation of the current world scene. This course is designed especially for teachers.

Geog. 105. Geography of Maryland and adjacent areas (3).

First and second semester. Prerequisite, permission of the instructor. An analysis of the physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the state of Maryland and adjacent areas. (Patton.)

Geog. 106S. Geography of Maryland (2).

Summer only. Permission of instructor. The geographic regions of Maryland and their principal characteristics, especially in relation to the development of home studies and other study projects.

Geog. 110. Economic and Cultural Geography of Caribbean America (3).

First semester. An analysis of the physical framework, broad economic and historical trends, cultural patterns, and regional diversification of Mexico, Central America, the West Indies, and parts of Colombia and Venezuela. (Augelli.)

Geog. 111. Economic and Cultural Geography of South America (3).

Second semester. A survey of natural environment and resources, economic development and cultural diversity of the South American republics, with emphasis upon problems and prospects of the countries. (Augelli.)

Geog. 120. Economic Geography of Europe (3).

First semester. The natural resources of Europe in relation to agricultural and industrial development and to present-day economic and national problems. (Van Royen, Patton.)

Geog. 122. Economic Resources and Development of Africa (3).

Second semester. The natural resources of Africa in relation to agricultural and mineral production; the various stages of economic development and the potentialities of the future. (Van Royen.)

Geog. 123. Problems of Colonial Geography (3).

First or second semester. Problems of development of colonial areas, with special emphasis upon the development of tropical regions and the possibilities of white settlement in the tropics.

Geog. 130, 131. Economic and Political Geography of Southern and Eastern Asia (3, 3).

First and second semesters. A study of China, Japan, India, Burma, Indo-China, and the East Indies; natural resources, population, and economic activities. Comparisons of physical and human potentialities of major regions and of their economic, social and political development. (Hu.)

Geog. 134, 135. Cultural Geography of East Asia (3, 3).

First and second semesters. A comprehensive and systematic survey of the geographical distribution and interpretation of the major racial groups and cultural patterns of China, Japan, and Korea. Special emphasis will be placed on the unique characteristics of the peoples of these areas, their basic cultural institutions, outlooks on life, contemporary problems, and trends of cultural change. Designed especially for students of the social sciences, and those preparing for careers in foreign service, foreign trade, education, and international relations. (Hu.)

Geog. 140. Soviet Lands (3).

First or second semester. The natural environment and its regional diversity. Geographic factors in the expansion of the Russian State. The geography of agricultural and industrial production, in relation to available resources, transportation problems, and diversity of population.

Geog. 146. The Near East (3).

First semester or second semester. The physical, economic, political, and strategic geography of the lands between the Mediterranean and India.

Geog. 150. History and Theory of Cartography (3).

Second semester. The development of maps throughout history. Geographical orientation, coordinates, and map scales. Map projections, their nature, use and limitations. Principles of representation of features on physical and cultural maps. Modern uses of maps and relationships between characteristics of maps and use types. (McBryde.)

Geog. 151, 152. Cartography and Graphics Practicum (3, 3).

First and second semesters. One hour lecture and two two hour laboratory periods a week. Techniques and problems of compilation, design, and construction of various types of maps and graphs. Relationships between map making and modern methods of production and reproduction. Trips to representative plants. Laboratory work directed toward cartographic problems encountered in the making of non-topographic maps. (Kärinen.)

Geog. 153. Problems of Cartographic Representation and Procedure (3).

First or second semester. Two hours lecture and two hours laboratory a week. Study of cartographic compilation methods. Principles and problems of symbolization, classification, and representation of map data. Problems of representation of features at different scales and for different purposes. Place-name selection and lettering; stick-up and map composition. (Kärinen.)

Geog. 154. Problems of Map Evaluation (3).

First or second semester. Two hours lecture and two hours laboratory a week. Schools of topographic concepts and practices. Theoretical and practical means of

determining map reliability, map utility, and source materials. Nature, status, and problems of topographic mapping in different parts of the world. Non-topographic special use maps. Criteria of usefulness for purposes concerned and of reliability. (Karinen.)

Geog. 155. Problems and Practices of Photo Interpretation (3).

First or second semester. Two hours of lecture and two hours of laboratory per week. Interpretation of aerial photographs with emphasis on the recognition of land-forms of different types and man-made features. Study of vegetation, soil, and other data that may be derived from aerial photographs. Types of aerial photographs and limitations of photo interpretation.

Geog. 160. Advanced Economic Geography I. Agricultural Resources (3).

First semester. Prerequisite, Geog. 1 and 2 or Geog. 10. The nature of agricultural resources, the major types of agricultural exploitation in the world, and the geographic distribution of certain major crops and animals in relation to the physical environment and economic geographic conditions. Main problems of conservation. (Van Royen.)

Geog. 161. Advanced Economic Geography II. Mineral Resources (3).

Second semester. Prerequisite, Geog. 1 and 2, or Geog. 10. The nature and geographic distribution of the principal power, metallic, and other minerals. Economic geographic aspects of modes of exploitation. Consequences of geographic distribution and problems of conservation. (Van Royen.)

Geog. 170. Local Field Course (3).

First semester. Training in geographic field methods and techniques. Field observation of land use in selected rural and urban areas in eastern Maryland. One lecture per week with Saturday and occasional weekend field trips. Primarily for undergraduates. (Karinen.)

Geog. 180. History, Nature and Methodology of Geography (3).

First semester. A comprehensive and systematic study of the history, nature, and basic principles of geography, with special reference to the major schools of geographic thought; a critical evaluation of some of the important geographical works and methods of geographic research. (Hu.)

Geog. 190. Political Geography (3).

Second semester. Geographical factors in national power and international relations; an analysis of the role of "Geopolitics" and "Geostrategy," with special reference to the current world scene. (Augelli.)

Geog. 195. Geography of Transportation (3).

Second semester. The distribution of transport routes on the earth's surface; patterns of transport routes; the adjustment of transport routes and media to conditions of the natural environment centers and their distribution. (Patton.)

Geog. 197. Urban Geography (3).

First semester. Origins of cities, followed by a study of elements of site and location

with reference to cities. The patterns and functions of some major world cities will be analyzed. Theories of land use differentiation within cities will be appraised. (Patton.)

Geog. 199. Topical Investigations (1-3).

First and second semesters. Independent study under individual guidance. Choice of subject matter requires joint approval of adviser and head of the Department of Geography. Restricted to advanced undergraduate students with credit for at least 24 hours of geography. (Staff.)

Geog. 200. Field Course (3).

Field work in September, conferences and reports during first semester. Practical experience in conducting geographic field studies. Intensive training in field methods and techniques and in the preparation of reports. For graduate students in geography. Open to other students by special permission of the head of the Department of Geography. (Staff.)

For Graduates

Geog. 210, 221. Seminar in the Geography of Latin America (3, 3).

First and second semesters. An analysis of recent changes and trends in industrial development, exploitation of mineral resources, and land utilization. Prerequisite, Geog. 110, 111 or consent of instructor. (McBryde.)

Geog. 220, 221. Seminar in the Geography of Europe and Africa (3, 3).

First and second semesters. Analysis of special problems concerning the resources and development of Europe and Africa. Prerequisite, Geog. 120 or 122, or consent of instructor. (Van Royen.)

Geog. 230, 231. Seminar in the Geography of East Asia (3, 3).

First and second semesters. Analysis of problems concerning the geography of East Asia with emphasis on special research methods and techniques applicable to the problems of this area. (Hu.)

Geog. 240, 241. Seminar in the Geography of the U. S. S. R. (3, 3).

First and second semesters. Investigation of special aspects of Soviet geography. Emphasis on the use of Soviet materials. Prerequisite, reading knowledge of Russian and Geog. 140, or consent of instructor.

Geog. 246. Seminar in the Geography of the Near East (3).

First and second semesters.

Geog. 250. Seminar in Cartography (credit arranged).

First or second semester. The historical and mathematical background of cartographic concepts, practices, and problems, and the various philosophical and practical

approaches to cartography. Discussions will be supplemented by the presentation of specific cartographic problems investigated by the students. (Mc Bryde and Karinen).

Geog. 260. Advanced General Climatology (3).

First semester. Prerequisite, Geog. 41, or consent of instructor. Advanced study of elements and controls of the earth's climates. Principles of climatic classification. Special analysis of certain climatic types. (Lemons.)

Geog. 261. Applied Climatology (3).

Second semester. Prerequisite, Geog. 41, or consent of instructor. Study of principles, techniques, and data of micro-climatology, physical and regional climatology relating to such problems and fields as transportation, agriculture, industry, urban planning, human comfort, and regional geographic analysis. (Lemons.)

Geog. 262, 263. Seminar in Meteorology and Climatology (3, 3).

First and second semesters. Prerequisite, consent of instructor. Selected topics in meteorology and climatology chosen to fit the individual needs of advanced students. (Lemons.)

Geog. 280. Geomorphology (3).

Second semester. An advanced comparative study of selected geomorphic processes and land forms; theories of land forms evolution and geomorphological problems. (Van Royen.)

Geog. 290, 291. Selected Topics in Geography (1-3).

First and second semesters. Readings and discussion on selected topics in the field of geography. To be taken only with joint consent of adviser and head of the Department of Geography. (Staff.)

Geog. 292, 293. Dissertation Research.

(Credit to be arranged)—First and second semesters and summer. (Staff.)

GOVERNMENT AND POLITICS

Professors Plischke, Burdette, and Steinmeyer; Associate Professors Bowen and Dixon; Assistant Professors Anderson and Harrison; Instructors Alford, Bundgaard, Friedman, Hathorn, and Obern.

G. and P. 1. American Government (3).

Each semester. This course is designed as the basic course in government for the American Civilization program, and it or its equivalent is a prerequisite to all other courses in the Department. It is a comprehensive study of governments in the United States—national, state, and local.

G. and P. 4. State Government and Administration (3).

First semester. Prerequisite, G. & P. 1. A study of the organization and functions

of state government in the United States, with special emphasis upon the government of Maryland.

G. and P. 5. Local Government and Administration (3).

Second semester. Prerequisite, G. & P. 1. A study of the organization and functions of local government in the United States, with special emphasis upon the government of Maryland cities and counties.

G. and P. 7. The Government of the British Commonwealth (2).

First semester. Prerequisite, G. & P. 1. A study of the governments of the United Kingdom and the British Dominions.

G. and P. 8. The Governments of Continental Europe (2).

Second semester. Prerequisite, G. & P. 1. A comparative study of the governments of France, Switzerland, Italy, Germany, and the Scandinavian countries.

G. and P. 9. The Governments of Latin America (2).

First semester. Prerequisite, G. & P. 1. A comparative study of Latin American governments, with special emphasis on Argentina, Brazil, Chile, and Mexico.

G. and P. 10. The Governments of Russia and the Far East (2).

Second semester. Prerequisite, G. & P. 1. A study of the governments of Russia, China and Japan.

G. and P. 97. Major Foreign Governments (3).

Prerequisite, G. and P. 1. An examination of characteristic governmental institutions and political processes in selected major powers, such as Britain, Russia, France, Germany, Italy, Japan, and China. Students may not receive credit in this course and also obtain credit in G. & P. 7, 8, or 10.

For Advanced Undergraduates and Graduates

G. and P. 101. International Political Relations (3).

First semester. Prerequisite, G. & P. 1. A study of the major factors underlying international relations, the influence of geography, climate, nationalism, and imperialism, and the development of foreign policies of the major powers.

G. and P. 102. International Law (3).

Second semester. Prerequisite, G. & P. 1. Fundamental principles governing the relation of states, including matters of jurisdiction over landed territory, water, airspace, and persons; treatment of aliens; treaty-making; diplomacy; and the laws of war and neutrality.

G. and P. 105. Recent Far Eastern Politics (3).

First semester. Prerequisite, G. & P. 1. The background and interpretation of recent political events in the Far East and their influence on world politics.

G. and P. 106. American Foreign Relations (3).

First semester. Prerequisite, G. & P. 1. The principles and machinery of the conduct of American foreign relations, with emphasis on the Department of State and the Foreign Service, and an analysis of the major foreign policies of the United States.

G. and P. 108. International Organization (3).

Second semester. Prerequisite, G. & P. 1. A study of the objectives, structure, functions, and procedures of international organizations, including the United Nations as well as functional and regional organizations such as the Organization of American States.

G. and P. 110. Principles of Public Administration (3).

First semester. Prerequisite, G. & P. 1. A study of public administration in the United States, giving special attention to the principles of organization and management and to fiscal, personnel, planning, and public relations practices.

G. and P. 111. Public Personnel Administration (3).

First semester. Prerequisite, G. & P. 110 or B. A. 160. A survey of public personnel administration, including the development of merit civil service, the personnel agency, classification, recruitment, examination techniques, promotion, service ratings, training, discipline, employee relations, and retirement.

G. and P. 112. Public Financial Administration (3).

Second semester. Prerequisite, G. & P. 110 or Econ. 142. A survey of governmental financial procedures, including processes of current and capital budgeting, the administration of public borrowing, the techniques of public purchasing, and the machinery of control through pre-audit and post-audit.

G. and P. 124. Legislatures and Legislation (3).

Second semester. Prerequisite, G. & P. 1. A comprehensive study of legislative organization, procedure, and problems. The course includes opportunities for student contact with Congress and with the Legislature of Maryland.

G. and P. 131, 132. Constitutional Law (3, 3).

First and second semesters. Prerequisite, G. & P. 1. A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution; the position of the states in the federal system; state and federal powers over commerce; due process of law and other civil rights.

G. and P. 133. Administration of Justice (3).

Second semester. Prerequisite, G. & P. 1. An examination of civil and criminal court structure and procedures in the United States at all levels of government, with special emphasis upon the federal judiciary.

G. and P. 141. History of Political Theory (3).

First semester. Prerequisite, G. & P. 1. A survey of the principal political theories set forth in the works of writers from Plato to Bentham.

G. and P. 142. Recent Political Theory (3).

Second semester. Prerequisite, G. & P. 1. A study of 19th and 20th century political thought, with special emphasis on recent theories of socialism, communism, and fascism.

G. and P. 144. American Political Theory (3).

First semester. Prerequisite, G. & P. 1. A study of the development and growth of American political concepts from the colonial period to the present.

G. and P. 154. Problems of World Politics (3).

Second semester. Prerequisite, G. & P. 1. A study of governmental problems of international scope, such as causes of war, problems of neutrality, and propaganda. Students are required to report on readings from current literature.

G. and P. 174. Political Parties (3).

First semester. Prerequisite, G. & P. 1. A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

G. and P. 178. Public Opinion (3).

First semester. Prerequisite, G. & P. 1. An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda, and pressure groups.

G. and P. 181. Administrative Law (3).

Second semester. Prerequisite, G. & P. 1. A study of the discretion exercised by administrative agencies, including analysis of their functions, their powers over persons and property, their procedures, and judicial sanctions and controls.

G. and P. 197. Comparative Governmental Institutions (3).

Second semester. Prerequisite, G. & P. 1. A study of major political institutions, such as legislatures, executives, courts, administrative systems, and political parties, in selected foreign governments.

For Graduates**G. and P. 201. Seminar in International Political Organization (3).**

A study of the forms and functions of various international organizations.

G. and P. 202. Seminar in International Law (3).

Reports on selected topics assigned for individual study and reading in substantive and procedural international law.

G. and P. 205. Seminar in American Political Institutions (3).

Reports on topics assigned for individual study and readings in the background and development of American government.

G. and P. 206. Seminar in American Foreign Relations (3).

Reports on selected topics assigned for individual study and readings in American foreign policy and the conduct of American foreign relations.

G. and P. 207. Seminar in Comparative Governmental Institutions (3).

Reports on selected topics assigned for individual study and reading in governmental and political institutions in governments throughout the world.

G. and P. 211. Seminar in Federal-State Relations (3).

Reports on topics assigned for individual study and reading in the field of recent federal-state relations.

G. and P. 213. Problems of Public Administration (3).

Reports on topics assigned for individual study and reading in the field of public administration.

G. and P. 214. Problems of Public Personnel Administration (3).

Reports on topics assigned for individual study and reading in the field of public personnel administration.

G. and P. 215. Problems of State and Local Government in Maryland (3).

Reports on topics assigned for individual study in the field of Maryland state and local government.

G. and P. 216. Government Administrative Planning and Management (3).

Reports on topics assigned for individual study and reading in administrative planning and management in government.

G. and P. 217. Government Corporations and Special Purpose Authorities (3).

Reports on topics assigned for individual study and reading in the use of the corporate form for governmental administration. The topics for study will relate to the use of the corporate form as an administrative technique, as in the cases of the Tennessee Valley Authority, the Port of New York Authority, and local housing authorities.

G. and P. 221. Seminar in Public Opinion (3).

Reports on topics assigned for individual study and reading in the field of public opinion.

G. and P. 223. Seminar in Legislatures and Legislation (3).

Reports on topics assigned for individual study and reading about the composition and organization of legislatures and about the legislative process.

G. and P. 224. Seminar in Political Parties and Politics (3).

Reports on topics assigned for individual study and reading in the fields of political organization and action.

G. and P. 225. Man and the State (3).

Individual reading and reports on such recurring concepts in political theory as liberty, equality, justice, natural law and natural rights, private property, sovereignty, nationalism, and the organic state.

G. and P. 231. Seminar in Public Law (3).

Reports on topics assigned for individual study and reading in the fields of constitutional and administrative law.

G. and P. 251. Bibliography of Government and Politics (3).

Survey of the literature of the various fields of government and politics and instruction in the use of government documents.

G. and P. 252. Problems of Democracy: National (3).

Summer session only.

G. and P. 253. Problems of Democracy: International (3).

Summer session only.

G. and P. 254. Problems of Democracy: National II (3).

Summer session only.

G. and P. 255. Problems of Democracy: International II (3).

Summer session only.

G. and P. 261. Problems of Government and Politics (3).

Credit according to work accomplished.

G. and P. 281. Departmental Seminar (No Credit).

Topics as selected by the graduate staff of the department. Registration for two semesters required of all doctoral candidates. Conducted by the entire departmental staff in full meeting.

G. and P. 299. Thesis Course.

(Arranged).

JOURNALISM AND PUBLIC RELATIONS

Professor Crowell; Associate Professor Krime; Assistant Professors Carey, Danegger; Instructors Bryan, Geraci, Phipps; Lecturer Lyons.

Journalism Courses

Journ. 10. News Reporting I (3).

First semester. Two lectures, two laboratory periods each week. Prerequisites,

Eng. 1, 2. Fundamentals of professional reporting. Laboratory time spent in writing news-story exercises assigned by instructor. Laboratory fee, \$3.00.

Journ. 11. News Reporting II (3).

First semester. Two lectures, two laboratory periods each week. Prerequisite, Journ. 10. More specialized types of news stories. Laboratory fee, \$3.00.

Journ 160. News Editing I (3).

First semester. Two lectures, two hours of laboratory each week. Prerequisite, Journ. 11. Copy editing, proofreading, headline writing. Laboratory fee, \$3.00.

Journ. 161. News Editing II (3).

Second semester. Two lectures; three hours of laboratory work on Baltimore Sun desk each week, arranged. Headwriting, makeup, rewriting, copy editing.

Journ 162. Community Journalism (3).

Second semester. Two lectures; three hours of laboratory work on a weekly newspaper each week, arranged. Introduction to community and weekly newspaper.

Journ. 163. Newspaper Typography (3).

Each semester. One lecture, four hours of laboratory each week. Introduction to newspaper typography, practice in laying out and making up advertisements and newspaper pages.

Journ. 165. Feature Writing (3).

Each semester. Writing and selling of newspaper and magazine articles.

Journ. 174. Editorial Writing (2).

First semester. Theory and practice in editorial writing.

Journ. 175. Reporting of Public Affairs (3).

First semester. One lecture; three hours of laboratory time spent each week on regular beat for Baltimore Sun, by arrangement. Advanced reporting; city, county, federal beats.

Journ. 176. Newsroom Problems (3).

First semester. Three lectures per week. Ethics, newsroom problems and policies, freedom and responsibilities of the press.

Journ. 181. Press Photography (3).

First, second semesters. One lecture, four hours of laboratory each week. Prerequisite, junior major standing in the department. Shooting, developing, printing of news and feature pictures. Equipment provided by university. Student furnishes own supplies needed in course. Laboratory fee, \$6.00, provides demonstration supplies, maintenance of cameras.

Journ. 182. Advanced Press Photography (2).

Each semester. One lecture, two hours of laboratory per week. Prerequisite, Journ. 181 or equivalent. Advanced shooting, developing, printing of news and feature pictures. Equipment provided by university. Student furnishes own supplies needed in course.

Journ. 184. Picture Editing (2).

Second semester. Prerequisite or corequisite, Journ. 181. Theories and exercises in handling pictures for the press.

Journ. 191. Law of the Press (3).

Second semester. Introduction to libel, right of privacy, fair comment and criticism, privilege, contempt by publication, Maryland press statutes.

Journ. 192. History of American Journalism (3).

First semester. Historical background of American journalism.

Public Relations Courses

P. R. 166. Public Relations (3).

First semester. Survey of public relations; general orientation, principles, techniques.

P. R. 170. Publicity Techniques (3).

First semester. Strategy and techniques of publicity operations. Orientation, practice in use of major media of public communications.

P. R. 171. Industrial Journalism (2).

First semester. Introduction to industrial communications, management and production of company publications; public relations aspects of industrial journalism.

P.R. 186. Public Relations of Government (3).

Second semester. Study of public relations, publicity, propaganda, information services in public administration.

P. R. 194. Public Relations Cases (2).

Second semester. Study of cases in public relations, with particular attention to policy formulation, strategy, ethical factors.

P. R. 195. Seminar in Public Relations (2).

Second semester. Group and individual research in public relations.

OFFICE TECHNIQUES AND MANAGEMENT

Associate Professor Patrick; Assistant Professor Clements; Instructors
O'Neill, Gera, Noyes.

O. T. 1. Principles of Typewriting (2).

First and second semesters. Five periods per week. Laboratory fee, \$7.50. The goal of this course is the attainment of the ability to operate the typewriter continuously with reasonable speed and accuracy by the use of the "touch" system. This course should be completed prior to enrollment in O. T. 12, Principles of Shorthand.

O. T. 2. Intermediate Typewriting (2).

First and second semesters. Five periods per week. Laboratory fee, \$7.50. Prerequisite, minimum grade of "C" in O. T. 1 or consent of instructor. Drills for improving speed and accuracy and an introduction to office production typewriting.

O. T. 10. Office Typewriting Problems (2).

First and second semesters. Five periods per week. Laboratory fee, \$7.50. Prerequisite, minimum grade of "C" in O. T. 2 or consent of instructor. A course to develop the highest degree of accuracy and speed possible and to teach the advanced techniques of typewriting with special emphasis on production.

O. T. 12, 13. Principles of Shorthand (4, 4).

First and second semesters. Five periods per week. Prerequisite, O. T. 1, and consent of instructor. This course aims to develop the mastery of the principles of Gregg Shorthand. In O. T. 13 special emphasis is placed on developing dictation speed.

***O. T. 116. Advanced Shorthand (3).**

First semester. Five periods per week. Prerequisite, minimum grade of "C" in O. T. 13 and O. T. 2 or consent of instructor. A course in shorthand speed building; development of dictation skill to the maximum for each individual.

O. T. 117. Gregg Transcription (2).

First semester. Four periods per week. Laboratory fee, \$7.50. Prerequisite, minimum grade of "C" in O. T. 13 and O. T. 2 or consent of instructor. This course is to be taken concurrently with O. T. 116. A course in intensive transcriptional speed building, and in the related skills and knowledges.

O. T. 118. Gregg Shorthand Dictation (3).

Second semester. Five periods per week. Prerequisite, minimum grade of "C" in O. T. 116 and O. T. 117, or consent of instructor. Advanced principles and phrases of shorthand; dictation covering vocabularies of representative businesses.

*O. T. 10 should be completed prior to Advanced Shorthand (O. T. 116); O. T. 116, Advanced Shorthand, and O. T. 117, Gregg Transcription, must be taken concurrently.

O. T. 110. Secretarial Work (3).

Second semester. Five periods per week. Prerequisite, O. T. 116 and O. T. 117 or consent of instructor. A comprehensive study of the procedures and information essential for the handling of the duties and responsibilities of an administrative assistant.

O. T. 114. Secretarial Office Practice (3).

First and second semesters. Six times per week. Prerequisite, senior standing and completion of O. T. 110. The purpose of this course is to give laboratory and office experience to senior secretarial students. A minimum of 90 hours of office experience under supervision is required. In addition, each student will prepare a written report on an original problem previously approved.



At College Park

College of EDUCATION

STAFF

VERNON E. ANDERSON, Professor of Education and Dean.

B.S., University of Minnesota, 1930; M.A., University of Minnesota, 1936; Ph.D., University of Colorado, 1942.

GLENN O. BLOUGH, Associate Professor of Education.

B.A., University of Michigan, 1929; M.A., University of Michigan, 1932; I.L.D., Central Michigan College of Education, 1950.

LUCILLE BOWIE, Fellow, Institute for Child Study.

B.S., University of Maryland, 1942; M.A., Teachers College, Columbia University, 1946.

RICHARD M. BRANDT, Assistant Professor of Education, Institute for Child Study.

B.M.E., University of Virginia, 1943; M.A., University of Michigan, 1949; Ed.D., University of Maryland, 1954.

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B.A., Blue Ridge College, 1911; M.A., University of Pittsburgh, 1917; Ph. D., George Washington University, 1933.

ELEANOR A. BROOME, Instructor in Childhood Education.

B.A., University of Maryland, 1943.

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B.A., Indiana State Teachers College, 1916; M.A., Indiana University, 1931.

LILLIAN W. BROWN, Instructor in Childhood Education.

B.A., Lake Erie College, 1930.

MARIE D. BRYAN, Associate Professor of Education.

B.A., Goucher College, 1923; M.A., University of Maryland, 1945.

RICHARD H. BYRNE, Associate Professor of Education.

B.A., Franklin and Marshall College, 1928; M.A., Columbia University, 1947; Ed.D., Columbia University, 1952.

HAROLD F. COTTERMAN, Professor of Education.

B.S., Ohio State University, 1916; M.A., Columbia University, 1917; Ph.D., American University, 1930.

MARIE DENECKE, Instructor in Education.

B.A., Columbia University, 1938; M.A., University of Maryland, 1942.

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B.S., Columbia University, 1917; M.A., Columbia University, 1927.

IRA J. GORDON, Associate Professor of Education, Institute for Child Study.

B.B.A., City College of New York, 1943; M.A., Columbia University, 1947; Ed.D., Columbia University, 1950.

WILLIAM HAMMERMAN, Graduate Assistant, Institute for Child Study.

B.S., Towson State Teachers College, 1952; M.A., University of Maryland, 1953.

R. LEE HORNBAKE, Professor and Head, Industrial Education.

B.S., State Teachers College, California, Pennsylvania, 1934; M.A., Ohio State University, 1936; Ph.D., Ohio State University, 1942.

KENNETH O. HOVET, Professor of Education.

B.A., St. Olaf College, 1926; Ph.D., University of Minnesota, 1950.

GLORIA ISAACSON, Graduate Assistant, Institute for Child Study.

B.S., University of Maryland, 1954.

MARY F. KEMBLE, Instructor in Music and Music Education.

B.S., State Teachers College, Mansfield, Pennsylvania, 1930; M.S., University of Pennsylvania, 1940.

JOHN J. KURTZ, Professor of Education, Institute for Child Study.

B.A., University of Wisconsin, 1935; M.A., Northwestern University, 1940; Ph.D., University of Chicago, 1947.

ROCCO E. LARUSSO, Fellow, Institute for Child Study.

B.S., New Jersey State Teachers College, 1942; M.A., Teachers College, Columbia University, 1948.

DONALD MALEY, Associate Professor of Industrial Education.

B.S., State Teachers College, California, Pennsylvania, 1943; M.A., University of Maryland, 1947; Ph.D., University of Maryland, 1950.

ALICE C. MARQUEZ, Graduate Assistant.

A.B., College of William and Mary, 1934; M.A., University of Maryland, 1948.

LOIS A. MAST, Instructor in Childhood Education.

B.S., University of Maryland, 1952.

EDNA B. McNAUGHTON, Professor of Childhood Education.

B.S., Michigan State College, 1911; M.A., Columbia University, 1924.

RICHARD L. MATTESON, Graduate Assistant, Institute for Child Study.

B.A., Knox College, Galesburg, Illinois, 1952.

GEORGE R. MERRILL, Instructor in Industrial Education.

B.S., University of Maryland, 1954; M.Ed., University of Maryland, 1955.

MADELAINE J. MERSHON, Professor of Education, Institute for Child Study.

B.S., Drake University, 1950; M.A., University of Chicago, 1943; Ph.D., University of Chicago, 1950.

DOROTHY R. MOHR, Professor of Physical Education.

B.S., University of Chicago, 1932; M.A., University of Chicago, 1933; Ph.D., University of Iowa, 1944.

H. GERTHON MORGAN, Professor of Education, Institute for Child Study.

B.A., Furman University, 1940; M.A., University of Chicago, 1943; Ph.D., University of Chicago, 1946.

CLARENCE A. NEWELL, Professor of Educational Administration.

B.A., Hastings College, Nebraska, 1935; M.A., Columbia University, 1939; Ph.D., Columbia University, 1943.

LEO W. O'NEILL, Associate Professor of Education.

B.A., University of Chicago, 1938; M.A., University of Kansas City, 1953; Ed.D., University of Colorado, 1955.

ARTHUR S. PATRICK, Associate Professor of Business Education.

B.E., State Teachers College, Whitewater, Wisconsin, 1931; M.A., University of Iowa, 1940.

HUGH V. PERKINS, Associate Professor of Education, Institute for Child Study.

B.A., Oberlin College, 1941; M.A., University of Chicago, 1946; Ph.D., University of Chicago, 1949.

DANIEL A. PRESCOTT, Professor of Education and Director, Institute for Child Study.

B.S., Tufts College, 1920; M.Ed., Harvard University, 1922; Ed.D., Harvard University, 1923.

WILLIAM ROYSTER, Graduate Assistant, Institute for Child Study.

B.A., Wofford College, Spartanburg, South Carolina, 1947; M.Ed., University of South Carolina, 1955.

ALVIN W. SCHINDLER, Professor of Education.

B.A., Iowa State College, 1927; M.A., University of Iowa, 1929; Ph.D., University of Iowa, 1934.

FERN D. SCHNEIDER, Associate Professor of Education.

B.S., Nebraska Wesleyan University, 1932; M.A., George Washington University, 1934; Ed.D., Columbia University, 1940.

CHARLES E. SHOEMAKER, Graduate Assistant, Industrial Education.

B.S., State Teachers College, Oswego, New York, 1947; M.A., Ohio State University, 1951.

MABEL S. SPENCER, Assistant Professor of Home Economics Education.

B.S., West Virginia University, 1925; M.S., West Virginia University, 1946.

DONALD STANGER, Assistant Professor of Education, Institute for Child Study.

B.S., State Teachers College, Glassboro, New Jersey, 1948; M.A., Columbia University, 1949; Ed.D., University of Maryland, 1955.

MARGARET A. STANT, Instructor in Childhood Education.

B.S., University of Maryland, 1952; M.Ed., University of Maryland, 1955.

JOANNE W. TAYLOR, Instructor in Childhood Education.

B.S., University of Maryland, 1954.

FRED R. THOMPSON, Associate Professor of Education, Institute for Child Study.

B.A., University of Texas, 1929; M.A., University of Texas, 1939; Ed.D., University of Maryland, 1952.

WILLIAM F. TIERNEY, Assistant Professor of Industrial Education.

B.S., Teachers College of Connecticut, 1941; M.A., Ohio State University, 1949; Ed.D., University of Maryland, 1952.

JAMES A. VAN ZWOLL, Professor of School Administration.

B.A., Calvin College, Grand Rapids, Michigan, 1933; M.A., University of Michigan, 1937; Ph.D., University of Michigan, 1942.

WALTER B. WAETJEN, Associate Professor of Education, Institute for Child Study.

B.S., State Teachers College, Millersville, Pennsylvania, 1942; M.S., University of Pennsylvania, 1947; Ed.D., University of Maryland, 1951.

GLADYS A. WIGGIN, Professor of Education.

B.S., University of Minnesota, 1929; M.A., University of Minnesota, 1939; Ph.D., University of Maryland, 1947.

GERTRUDE WOOD, Assistant Professor of Education, Institute for Child Study.

B.A., University of Southern California, 1937; M.A., University of Southern California, 1942; Ed.D., University of Southern California, 1955.

ALBERT W. WOODS, Associate Professor of Physical Education.

B.S., University of Maryland, 1933; M.Ed., University of Maryland, 1949.

SUPERVISING TEACHERS—1954-55

JEAN G. BAKER, Montgomery Blair Senior High School, Montgomery County.

RUTH H. BAUER, Northwestern Senior High School, Prince George's County.

THOMAS E. BEATTY, Bladensburg Senior High School, Prince George's County.

MARGARET A. BECKMAN, Suitland Senior-Junior High School, Prince George's County.

KATHERINE E. BERGIN, McKinley Senior High School, Washington, D. C.

ROBERT L. BICKFORD, Suitland Senior-Junior High School, Prince George's County.

- ANNA BLOOM, Forest Park High School, Baltimore City.
- SAMUEL M. BOHINC, Takoma Park Junior High School, Montgomery County.
- ELIZABETH T. BOMAR, Montgomery Hills Junior High School, Montgomery County.
- WALTER BOROWITZ, Greenbelt Junior High School, Prince George's County.
- IRIS M. BOSLEY, Montgomery Hills Junior High School, Montgomery County.
- SUSAN E. BOYER, Montgomery Blair Senior High School, Montgomery County.
- HAZEL BRATT, Montgomery Blair Senior High School, Montgomery County.
- SARAH V. BROWN, Leland Junior High School, Montgomery County.
- JOSEPH D. BRYAN, High Point Senior-Junior High School, Prince George's County.
- CHARLES C. BRYCE, Bladensburg Senior High School, Prince George's County.
- MARION BUNDY, Bladensburg Junior High School, Prince George's County.
- HORACE BUTTERWORTH, Anacostia Senior High School, Washington, D. C.
- MARY E. BYRNES, Montgomery Knolls Elementary School, Montgomery County.
- ROBERT E. CALLAHAN, Bladensburg Senior-High School, Prince George's County.
- EUGENE D. CARNEY, Mt. Rainier Junior High School, Prince George's County.
- OLIVE E. CARR, Leland Junior High School, Montgomery County.
- MARYHELEN B. CARROLL, Bladensburg Senior High School, Prince George's County.
- MARGARET CASEY, Bethesda-Chevy Chase Senior High School, Montgomery County.
- RUTH C. CHANEY, Beltsville Elementary School, Prince George's County.
- MILDRED CLEMENT, Bethesda-Chevy Chase Senior High School, Montgomery County.
- LYLE M. COATES, McKinley Senior High School, Washington, D. C..
- JOHANNA CODA, Bladensburg Primary School, Prince George's County.
- J. A. COLLINS, Woodrow Wilson Senior High School, Washington, D. C.
- DORIS N. COMBY, Surrattsville Senior-Junior High School, Prince George's County.
- DONALD A. COMER, Takoma Park Junior High School, Montgomery County.
- CATHERINE CONOFAY, Swanson Junior High School, Arlington County, Virginia.
- SAMUEL L. COOKE, Surrattsville Senior-Junior High School, Prince George's County.
- RENO ANTHONY CONTINETTI, Eastern Junior High School, Montgomery County.
- JANET COWLES, John Ruhran Elementary School, Baltimore City.
- JEWELL M. CREIGHTON, Woodside Elementary School, Montgomery County.
- BEATRICE W. CROCKER, Kensington Junior High School, Montgomery County.
- NANCY C. CUBBAGE, Northwestern Senior High School, Prince George's County.
- CHARLENE H. CUMBERLAND, Northwestern Senior High School, Prince George's County.
- BERT L. DAMRON, JR., Bladensburg Junior High School, Prince George's County.
- RUTH A. DAVIS, Glenmont Elementary School, Montgomery County.
- RICHARD DENT, Leland Junior High School, Washington, D. C.
- LOUISE A. DICKSON, Anacostia Senior High School, Washington, D. C.
- ANNELIESE V. DICKERSON, Bladensburg Senior High School, Prince George's County.
- CLARA M. DIXON, Glen Burnie Senior High School, Anne Arundel County.
- HERBERT W. DODGE, Montgomery Blair Senior High School, Montgomery County.

- EULA S. DORSEY, Kramer Junior High School, Washington, D. C.
- LUCILLE E. DOYLE, Broadacres Elementary School, Montgomery County.
- LUCY ELIZABETH DUFFY, Bladensburg Senior High School, Prince George's County.
- HOPE W. EAGLE, Silver Spring Nursery School, Inc., Montgomery County.
- SOPHIA R. EDWARDS, Anacostia Senior High School, Washington, D. C.
- DOROTHY M. EHLERS, Bladensburg Senior High School, Prince George's County.
- RAE JEAN FITZWATER, Eastern Junior High School, Montgomery County.
- MAIDA E. FRYE, College Park Elementary School, Prince George's County.
- LILLIAN GLAZER, Montgomery Blair Senior High School, Montgomery County.
- SALLY B. GEOGHEGAN, High Point Senior-Junior High School, Prince George's County.
- MARION S. GRAYSON, Garden Nursery School, Inc., Montgomery County.
- HELEN GRAHAM, Community Coop., Pinecrest Recreation Center, Montgomery County.
- KATHERINE B. GREANEY, Bethesda-Chevy Chase High School, Montgomery County.
- ELWYNNE M. GRIFFITH, Suitland Senior-Junior High School, Prince George's County.
- MARY A. HACKMAN, Glen Burnie Senior High School, Anne Arundel County.
- TED HAJDASZ, Mt. Rainier Junior High School, Prince George's County.
- PEARL HANSEN, Riverdale Elementary School, Prince George's County.
- LOUISE P. HARMON, Montgomery Blair Senior High School, Montgomery County.
- ELEANOR HARRIS, Hyattsville Junior High School, Prince George's County.
- WILLIAM H. HARRIS, JR., Northwestern Senior High School, Prince George's County.
- WALTER HEIDERMAN, Southern High School, Baltimore City.
- BETTY HENSHAW, Bel Air Senior-Junior High School, Harford County.
- CHARLES E. HIXEN, JR., Hyattsville Junior High School, Prince George's County.
- ELIZABETH P. HIGHBY, Glenbrook Nursery School, Inc., Montgomery County.
- M. DENE HOFFMAN, Bladensburg Senior High School, Prince George's County.
- HARRY TEX HUGHES, Bladensburg Senior High School, Prince George's County.
- HARRY ROBINSON HUGHES, Bladensburg Senior High School, Prince George's County.
- CLARA LEE HYATT, Bethesda-Chevy Chase Senior High School, Montgomery County.
- MARY LOUISE IACANGELO, Montgomery Blair Senior High School, Montgomery County.
- JEAN T. IFFERT, Green Acres School, Montgomery County.
- GLORIA A. ISAACSON, Mt. Rainier Elementary School, Prince George's County.
- CHARLES W. JOHNSON, Oxon Hill Senior-Junior High School, Prince George's County.
- JACK C. KALBAUGH, High Point Senior-Junior High School, Prince George's County.
- MARGARET J. KAUFFMAN, Bethesda-Chevy Chase High School, Montgomery County.
- MARIANNA KEENE, Hyattsville Junior High School, Prince George's County.
- DOROTHY KELL, Forest Park High School, Baltimore City.
- CAMILLE E. KENDALL, Bladensburg Senior-Junior High School, Prince George's County.

- PRISCILLA C. KLINE, Montgomery Blair Senior High School, Montgomery County.
VIOLA JANE KNOWLES, Eastern Junior High School, Montgomery County.
KATHERINE KRIEMELMEYER, Takoma Park Cooperative Nursery School, Montgomery County.
JAMES A. LALLY, JR., Suitland Senior-Junior High School, Prince George's County.
JOSEPHINE LAMANSKI, Northwestern Senior High School, Prince George's County.
MILDRED K. LIMBURG, Somerset Elementary School, Montgomery County.
RUSSELL LOMBARDY, Anacostia Senior High School, Washington, D. C.
JAMES J. LYNCH, Washington and Lee High School, Arlington County, Virginia.
JOAN LYNCH, Green Acres School, Montgomery County.
CAROL V. McCAMMAN, Calvin Coolidge Senior High School, Washington, D. C.
BETTY McELROY, Mt. Rainier Elementary School, Prince George's County.
JOSEPH J. McFADDEN, Bladensburg Senior High School, Prince George's County.
BABETTE S. MACPHERSON, Rolling Terrace Elementary School, Montgomery County.
FRANCES W. McHENRY, Somerset Elementary School, Montgomery County.
REBEKAH McREYNOLDS, Woodrow Wilson Senior High School, Washington, D. C.
JOHN MALEY, Richard Montgomery High School, Montgomery County.
VICTOR J. MARIETTA, Mt. Rainier Junior High School, Prince George's County.
ALICE C. MARQUEZ, Bethesda-Chevy Chase High School, Montgomery County.
JULIA D. MARSHALL, Bladensburg Junior High School, Prince George's County.
IRIS E. MASSEY, Montgomery Blair Senior High School, Montgomery County.
JOHN J. MATHENA, Surrattsville Senior-Junior High School, Prince George's County.
ROBERT E. MATULA, La Plata Senior-Junior High School, Charles County.
INEZ K. MEHRENS, Parkside Elementary School, Montgomery County.
WILLIAM R. MENTZER, Eastern Junior-Senior High School, Washington, D. C.
THEODORE MICHALEK, Samuel Gompers General Vocation School, Baltimore City.
JOSEPH MUELLER, Patterson Park Senior-Junior High School, Baltimore City.
THOMAS W. MULKEY, High Point Senior-Junior High School, Prince George's County.
JOSEPH M. MURPHY, Northwestern Senior High School, Prince George's County.
CECIL NORRIS, Mergenthaler Vocational Technical High School, Baltimore City.
RUTH E. OASS, Takoma Park Junior High School, Montgomery County.
ELLEN F. OPPENHEIM, Rock Creek Gardens Nursery School, Montgomery County.
HOWARD B. OWENS, Northwestern Senior High School, Prince George's County.
DOROTHY S. PELLING, Suitland Senior-Junior High School, Prince George's County.
JAMES E. PERRY, JR., Hyattsville Junior High School, Prince George's County.
PATRICIA G. PERUSSE, Bethesda Chevy Chase High School, Montgomery County.
DAVID C. PINSON, Bladensburg Junior High School, Prince George's County.
FRED J. PROCOPIO, Richard Montgomery Senior-Junior High School, Montgomery County.
ELIZABETH A. PUTNAM, Northwestern Senior High School, Prince George's County.

MARY W. RASMUSSEN, Eastern Junior High School, Montgomery County.
KATHLEEN P. REHANEK, Northwestern Senior High School, Prince George's County.
EDWARD P. RIEDER, Montgomery Blair Senior High School, Montgomery County.
WALLACE R. ROBY, Hyattsville Junior High School, Prince George's County.
MAXINE W. ROGERS, Eastern Junior High School, Montgomery County.
MICHAEL R. RONCA, Northwestern Senior High School, Prince George's County.
MARY SABINE, Forest Park High School, Baltimore City.
FLORENCE SELBY, Gwynn Falls Park Junior High School, Baltimore City.
SOPHIE H. SHAKOW, Silver Spring Nursery School, Inc., Montgomery County.
REX SIMS, Forest Park High School, Baltimore City.
WARREN G. SMELTZER, Northwestern Senior High School, Prince George's County.
EDWARD SOLOMON, McKinley Senior High School, Washington, D. C.
PRISCILLA B. STEPHENS, Bladensburg Senior High School, Prince George's County.
JACK F. SWEARMAN, High Point Senior-Junior High School, Prince George's County.
GEORGE G. TALBOTT, JR., High Point Senior-Junior High School, Prince George's County.
RUSSELL W. TROXEL, Montgomery Hills Junior High School, Montgomery County.
RUTH ANN TRUNDLE, Paul Junior High School, Washington, D. C.
DOROTHEA H. UMBACH, High Point Senior-Junior High School, Prince George's County.
BERTHA VERNIER, Garrison Junior High School, Baltimore City.
ESTHER VOGEL, Suitland Senior-Junior High School, Prince George's County.
RICHARD E. WAGNER, Montgomery Blair Senior High School, Montgomery County.
NANCY H. WALKER, Thomas Stone Elementary School, Prince George's County.
RUTH E. WARREN, Catonsville Senior High School, Baltimore County.
EVERETT Q. WATERMAN, Bladensburg Senior-Junior High School, Prince George's County.
NAN WEBSTER, Bel Air Senior-Junior High School, Harford County.
LOUISE P. WELKER, Howard High School, Howard County.
ANN M. WILLARD, Montgomery Hills Junior High School, Montgomery County.
JACK WILLARD, High Point Senior-Junior High School, Prince George's County.
CHARLOTTE WILLASCH, Columbus School No. 99, Baltimore City.
MAY-LOUISE WOOD, Montgomery Blair Senior High School, Montgomery County.
DALE B. WOODBURN, High Point Senior-Junior High School, Prince George's County.
WILLIAM D. YARNALL, Northwestern Senior High School, Prince George's County.
DAVID C. YOUNG, Northwestern Senior High School, Prince George's County.
STANLEY ZIOBRO, McKinley Senior High School, Washington, D. C.

SUPERVISING TEACHERS—1955-56

First Semester

HENRY A. AGUSIEWIECZ, Paul Junior High School, Washington, D. C.
LEONORA AIKEN, Bethesda-Chevy Chase Senior High School, Montgomery County.

- HELEN ANNIS, Takoma Park Elementary School, Montgomery County.
EDNA ARNN, Suitland Junior High School, Prince George's County.
GEORGE D. ARNOLD, Kenwood Senior High School, Baltimore County.
MILTON BAILEY, Suitland Senior High School, Prince George's County.
HERMAN BAINDER, Baltimore Polytechnic Institute, Baltimore City.
JEAN G. BAKER, Montgomery Blair Senior High School, Montgomery County.
RENA E. BECKER, Montgomery County Jewish Community Center, Montgomery County.
ELLEN J. BECKMAN, Northwestern Senior High School, Prince George's County.
SUZANNE BENNETT, Thomas Stone Elementary School, Prince George's County.
WILMER F. BENNETT, Hine Junior High School, Washington, D. C.
GERTRUDE BOESCH, Montgomery Hills Junior High School, Montgomery County.
WALTER BOROWITZ, Greenbelt Junior High School, Prince George's County.
IRIS M. BOSLEY, Montgomery Hills Junior High School, Montgomery County.
CLARA BRICKER, Northwestern Senior High School, Prince George's County.
VIRGINIA S. BROWN, Leland Junior High School, Montgomery County.
HORACE BUTTERWORTH, Anacostia Senior High School, Washington, D. C.
MARGARET CASEY, Bethesda-Chevy Chase Senior High School, Montgomery County.
RUTH C. CHANEY, Beltsville Elementary School, Prince George's County.
DANIEL CHASE, Hyattsville Junior High School, Prince George's County.
JOHANNA CODA, Bladensburg Primary School, Prince George's County.
CATHERINE COOPER, Suitland Elementary School, Prince George's County.
JOHN COX, Golden Ring Junior High School, Baltimore County.
JEWELL M. CREIGHTON, Woodside Elementary School, Montgomery County.
BEATRICE W. CROCKER, Kensington Junior High School, Montgomery County.
NANCY C. CUBBAGE, Northwestern Senior High School, Prince George's County.
RUTH A. DAVIS, Glenmont Elementary School, Montgomery County.
RUTH DELPINO, Anacostia Senior High School, Washington, D. C.
LEONORE A. DICKMAN, Louisa M. Alcott Elementary School, Baltimore City.
RUTH K. DINGER, West Lanham Hills Elementary School, Prince George's County.
ANGELA DONDERO, Hyattsville Junior High School, Prince George's County.
ELIZABETH DOWNING, College Park Elementary School, Prince George's County.
HOPE W. EAGLE, Silver Spring Nursery School, Inc., Montgomery County.
BARBARA EHRLICH, Orthopedic Unit, Silver Spring Intermediate School, Montgomery County.
EVELYN E. FERNSNER, Murch Elementary School, Washington, D. C.
ROBERT FOSTER, High Point Senior High School, Prince George's County.
GEORGE GIENGER, Eastern Suburban Junior High School, Montgomery County.
HELEN GRAHAM, Community Cooperative School, Montgomery County.
ANN HALL, Bladensburg Junior High School, Prince George's County.
LOIS HARDING, Northwestern Senior High School, Prince George's County.

- LOUISE P. HARMAN, Montgomery Blair Senior High School, Montgomery County.
SUELLA HARRINGTON, Roland Park Junior High School, Baltimore City.
MYRNA LEE HELTSLEY, Eastern Suburban Junior High School, Montgomery County.
PAULINE HOLCOMB, Wheaton Senior High School, Montgomery County.
HARRY TEX HUGHES, Bladensburg Senior High School, Prince George's County.
ELIZABETH P. HIGBY, Glenbrook Nursery School, Inc., Montgomery County.
HELEN HORNER, Westminster Senior-Junior High School, Carroll County.
CLARA LEE HYATT, Bethesda-Chevy Chase Senior High School, Montgomery County.
GERTRUDE JAMISON, Westminster Senior-Junior High School, Carroll County.
EVELYN JARRELL, Hyattsville Junior High School, Prince George's County.
VICTOR KESTLE, Forest Park Senior High School, Baltimore City.
CHARLES R. KILBOURNE, Suitland Senior High School, Prince George's County.
TRUMAN KLEIN, Suitland Senior High School, Prince George's County.
VIOLA JANE KNOWLES, Eastern Suburban Junior High School, Montgomery County.
KATHERINE KRIEMELMEYER, Takoma Park Cooperative Nursery School, Montgomery County.
JAMES A. LALLEY, JR., Suitland Junior High School, Prince George's County.
ALFRED LITTLE, Hyattsville Junior High School, Prince George's County.
MARY LIZER, Thomas Stone Elementary School, Prince George's County.
PAULINE Y. LONG, Paul Junior High School, Washington, D. C.
CARRIE LUSBY, Montgomery Blair Senior High School, Montgomery County.
BABETTE S. MACPHERSON, Rolling Terrace Elementary School, Montgomery County.
THELMA MCADOO, Takoma Park Junior High School, Montgomery County.
HENRY E. McCONE, Washington and Lee High School, Arlington County, Virginia.
JOHN MCHALE, Montgomery Blair Senior High School, Montgomery County.
GEORGE MESSICK, Bethesda-Chevy Chase Senior High School, Montgomery County.
FRANCES MITCHELL, Murch Elementary School, Washington, D. C.
LUCILLE MOLER, Montgomery Blair Senior High School, Montgomery County.
ROSALIE MOODY, Clifton Park Junior High School, Baltimore City.
ANNE MULLAN, Eastern High School, Baltimore City.
ELSIE NELSON, Montgomery Knolls Elementary School, Montgomery County.
RUTH E. OASS, Takoma Park Junior High School, Montgomery County.
HOWARD B. OWENS, Northwestern Senior High School, Prince George's County.
DANIEL PALUMBO, Northwestern Senior High School, Prince George's County.
JAMES E. PERRY, Hyattsville Junior High School, Prince George's County.
ALINE PORTER, College Park Elementary School, Prince George's County.
WILLIAM PULLIAM, Greenbelt North End Elementary School, Prince George's County.
WINIFRED SHERWOOD, Bethesda-Chevy Chase Senior High School, Montgomery County.
ANN SMITHERS, Hyattsville Elementary School, Prince George's County.
VIRGINIA STANTON, Laurel Senior-Junior High School, Prince George's County.

ELIZABETH STEIN, Grant Elementary School, Washington, D. C.

DORIS STIVERS, Caroline Senior-Junior High School, Caroline County.

MARY W. SULLIVAN, Bethesda-Chevy Chase High School, Montgomery County.

H. NORMAN TAYLOR, Bethesda-Chevy Chase Senior High School, Montgomery County.

ESTHER VOGEL, Suitland Senior High School, Prince George's County.

MARGARET VYCITAL, Filmore Elementary School, Washington, D. C.

ALLEN WITTEL, Roland Park Junior High School, Baltimore City.

SPONSORING ADMINISTRATORS

Internships in Educational Administration

1954-55

FORBES H. NORRIS, *Superintendent*, Montgomery County, Rockville, Maryland.

THOMAS W. PYLE, *Assistant Superintendent*, Montgomery County, Rockville, Md.

RUTH S. GUE, *Supervisor of Elementary Schools*, Montgomery County, Rockville, Maryland.

JOSEPH J. TARALLO, *Principal*, Richard Montgomery High School, Rockville, Md.



The Administration Building

COLLEGE OF EDUCATION

VERNON E. ANDERSON, *Ph.D., Dean*HENRY BRECHBILL, *Ph.D., Assistant Dean*

THE College of Education meets the needs of the following classes of students: (1) persons preparing to teach in secondary schools, elementary schools, kindergartens, and nursery schools; (2) present or prospective elementary teachers who wish to supplement their preparation; (3) students preparing for educational work in the trades and industries; (4) graduate students preparing for teaching, supervisory, or administrative positions; (5) students whose major interests are in other fields, but who desire courses in education.

SPECIAL FACILITIES AND ACTIVITIES

Research and Teaching Facilities

Because of the location of the University in the suburbs of the nation's capital, unusual facilities for the study of education are available to its students and faculty. The Library of Congress, the library of the U. S. Office of Education, and special libraries of other government agencies are accessible, as well as the information services of the National Education Association, American Council on Education, U. S. Office of Education, and other institutions, public and private. The school systems of the District of Columbia, Baltimore, and the counties of Maryland offer generous cooperation.

The Institute for Child Study

The Institute for Child Study carries on the following activities: (1) it undertakes basic research in human development; (2) it digests and synthesizes research findings from the many sciences that study human beings; (3) it plans, organizes, and provides consultant service programs of direct child study by in-service teachers in individual schools or in municipal, county or state systems; (4) it offers field training to a limited number of properly qualified doctoral students, preparing them to render expert consultant service to schools and for college teaching of human development. Inquiries should be addressed to Director, Institute for Child Study.

The Workshop on Child Development and Education

The College of Education operates a Workshop on Child Development and Education for six weeks each summer. Requiring full-time work of all participants, it provides opportunities for (1) study and synthesis of scientific knowledge about children and youth; (2) training in the analysis of case records; (3) training for study-group leaders for in-service child study programs; (4) planning in-service programs of child study for teachers and pre-service courses and laboratory experiences for prospective teachers; (5) analysis of the curricular, guidance, and school organization implications of scientific knowledge about human development and behavior. Special announcements of the Workshop are available about March 15 of each year and advance registration is required because the number of participants must be limited. Inquiries should be addressed to the Director, Workshop on Child Development and Education.

Industrial Education Department

The Industrial Education Department is housed in a new building known as the

J. Milton Patterson Building. The facilities of this building are devoted exclusively to the work of the Department. There are ten shops, a drafting room, library, conference room and two classrooms. All of the shops are adequately equipped with modern tools and machines.

The University of Maryland Nursery-Kindergarten School

The University of Maryland operates a nursery-kindergarten school on the campus in which students majoring in childhood education receive training and practical experience.

Professional and Pre-professional Organizations

The College of Education sponsors two professional organizations: Phi Delta Kappa, the national professional fraternity for men in Education, and Iota Lambda Sigma, the national honorary fraternity in Industrial Education. Both fraternities have large and active chapters and are providing outstanding professional leadership in their fields of service.

The College of Education also sponsors a Chapter of the Future Teachers of America, a department of the National Education Association. This chapter is open to undergraduate students on the College Park campus.

Courses Outside of College Park

Through the College of Special and Continuation Studies a number of courses in education are offered in Baltimore and elsewhere. These courses are chosen to meet the needs of groups of students in various centers. In these centers, on a part-time basis, a student may complete a part of the work required for an undergraduate or graduate degree.

Announcements of such courses may be obtained by addressing requests to the Dean, College of Special and Continuation Studies, College Park, Maryland.

UNDERGRADUATE PROGRAMS

Requirements for Admission

All students desiring to enroll in the College of Education must apply to the Director of Admissions of the University of Maryland at College Park.

In selecting students more emphasis will be placed upon good marks and other indications of probable success in college rather than upon a fixed pattern of subject matter. In general, 4 units of English and 1 unit each of Social and Natural Sciences are required. One unit each of Algebra and Plane Geometry is desirable. While Foreign Language is desirable for certain programs, no Foreign Language is required for entrance. Fine Arts, Trade and Vocational subjects are acceptable as electives.

Candidates for admission whose high school records are consistently low are strongly advised not to seek admission to the College of Education.

General Information

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records,

student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denominational clubs, fraternities, societies and special clubs, the University band, student publications, University Post Office and Supply Store, write to the Director of Publications for the Catalog of General Information.

Military Instruction

All male students, unless specifically exempted under University rules, are required to take basic Air Force R. O. T. C. training for a period of two years. The successful completion of this course is a prerequisite for graduation but it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

Selected students who wish to do so may carry advanced Air Force R. O. T. C. courses during their junior and senior years which lead to a regular or reserve commission in the United States Air Force.

For further details concerning the requirements in Military Instruction, write the Director of Publications for the Catalog of General Information.

Physical Education and Health

All undergraduate students classified academically as freshmen and sophomores, irrespective of their physical condition, who are registered for more than six semester hours, are required to complete four prescribed courses in physical education. These courses must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have credit in these courses or their equivalent, must complete them or take them until graduation, whichever occurs first. Students with military service may receive credit for these required courses by applying to the Dean of the College of Air Science.

Guidance in Registration

At the time of matriculation each student is tentatively assigned to a member of the faculty who acts as the student's personal adviser. The choice of subject areas within which the student will prepare to teach will be made under faculty guidance during the first year in the Orientation to Education course required of all freshmen. Thereafter, the student will advise regularly with the faculty member in the College of Education responsible for his teaching major. While it may be possible to make satisfactory adjustments as late as the junior year for students from other colleges who have not already entered upon the sequence of professional courses, it is highly desirable that the student begin his professional work in the freshman year. *Students who intend to teach* (except Vocational Agriculture) *should register in the College of Education*, in order that they may have continuously the counsel and guidance of the faculty which is directly responsible for their professional preparation.

Junior Status

The first two years of college work are preparatory to the professional work of

the junior and senior years. To be eligible to enter the professional courses, a student must have attained junior status. (See Academic Regulations.)

Certification of Teachers

The State Department of Education certifies to teach in the approved high schools of the State only graduates of approved colleges who have satisfactorily fulfilled subject-matter and professional requirements. Specifically it limits certification to graduates who "rank academically in the upper four-fifths of the class and who make a grade of C or better in student teaching." The several curricula of the College of Education fulfill State Department requirements for certification.

Students intending to qualify as teachers in Baltimore, Washington, or any other city or state should, in their junior year, obtain a statement of certification requirements from these areas and be guided thereby in the selection of courses. Advisers will assist in obtaining and utilizing such information.

Degrees

The degrees conferred upon students who have met the conditions prescribed for a degree in the College of Education are Bachelor of Arts and Bachelor of Science. Majors in English, social sciences, language, and art receive the B.A. degree. Mathematics majors may receive either degree. All others receive the B.S. degree.

Costs

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140.00 to \$170.00 lodging for Maryland residents, or \$180.00 to \$220.00 for residents of other States and Countries; and laboratory fees, which vary with the laboratory courses pursued. A matriculation fee of \$10.00 is charged all new students. A charge of \$250.00 is assessed to all students who are non-residents of the State of Maryland.

For a more detailed statement of these costs, write to the Director of Publications for the Catalog of General Information.

GRADUATE STUDIES

Graduate Status

For graduate study in education a student must have earned at least 16 semester credits in education at the undergraduate level, and hold a bachelor's or master's degree from a college or university of recognized standing. This requirement may be interpreted so that foundation work in fields other than education may be accepted in cases of graduate students not preparing for school work. The student must also satisfy the Graduate School as to his ability to do graduate work.

Registration

A graduate student in education must matriculate in the Graduate School. Application for admission to the Graduate School should be made prior to dates of registration on blanks obtained from the office of the Dean of the Graduate School. For further instructions a student should consult the Graduate School catalog.

Masters' Degrees

A graduate student in education may matriculate for a Master of Education or a Master of Arts degree. For requirements of these degrees, the student should consult both the Graduate School catalog and the duplicated material issued by the College of Education. On matriculation, the student should select a faculty adviser.

Doctors' Degrees

Programs leading to a Doctor of Philosophy or a Doctor of Education degree in Education are administered for the Graduate School by the Department of Education. For requirements of these degrees, the student should consult both the Graduate School catalog and the statement of policy relative to doctoral programs in education. If the student has not already made arrangements with a member of the faculty to advise him, he should consult with the chairman of the Education Committee on Candidacy regarding a proper adviser.

CURRICULA AND REQUIRED COURSES

The undergraduate curricula in the College of Education with advisers for each curriculum are as follows:

Academic Education

English—Marie D. Bryan
Foreign Languages—Fern D. Schneider
Mathematics—Henry Brechbill
Natural Sciences—Henry Brechbill
Social Sciences—Kenneth O. Hovet
Speech—Warren Strausbaugh

Agricultural Education (under the College of Agriculture)

Arthur M. Ahalt

Art Education

Vienna Curtiss

Business Education

Arthur S. Patrick

Elementary Education

Alvin W. Schindler
Marie Denecke
Glenn O. Blough
Leo W. O'Neill

Home Economics Education

Mabel Spencer

Industrial Education

R. Lee Hornbake
Glen D. Brown
Donald Maley
William F. Tierney

Music Education

Mary F. Kemble

Nursery School-Kindergarten Education

Edna B. McNaughton

Margaret A. Stant

Physical Education (Men)

Albert W. Woods

Physical Education (Women)

Dorothy R. Mohr

General Requirements of the College

A total of 120 semester hours in addition to the University requirement in military science and physical education is required for graduation in the College of Education. In no case shall the total number of semester hours required for graduation be less than 128.

The following minimum requirements are common to all curricula: English—12 semester hours; social studies—12 semester hours as follows: Soc. 1—Sociology of American Life; G & P 1—American Government; and H. 5, 6—History of American Civilization; science or mathematics—6 semester hours; education—20 semester hours; speech—3 semester hours; physical education and military science as required by the University.

Marks in all required upper division courses in education and in subjects in major and minor fields must be C or higher. A general average of C or higher must be maintained. In order to be admitted to a course in student teaching *a student must have a grade point average of 2.275.*

Exceptions to curricular requirements and rules of the College of Education must be recommended by the student's adviser and approved by the Dean.

Students who are not enrolled in the College of Education but who are preparing to teach must meet all curricular and scholastic requirements of the College of Education.

Majors and Minors.

Students select a teaching major: for example, social science, art, music, physical education. Those electing the academic curriculum will ordinarily select both a teaching major and a teaching minor, and students in other curricula may select minors if they so desire. Advisers may waive the requirement for a minor when necessary to permit the development of an approved area such as psychology, human development, or sociology.

Students selecting an academic major and an academic minor, or those selecting *one* special teaching field such as industrial education need to take only one methods course: for example, Ed. 140 or Ind. Ed. 140. Students who select an academic major and a special fields minor, or vice versa, must take methods courses in both the major and minor fields, and should divide their student teaching between the two fields.

Academic Education

Students enrolled in this curriculum will meet the above minimum requirements in English and social science, plus the following:

- (1) Foreign language for candidates for the bachelor of arts degree: 12 semester hours provided the student enters with less than three years of foreign language credits; 6 semester hours, if he enters with three years of such credits. No foreign language is required of any student who enters

with four years of language credits nor of candidates for the bachelor of science degree unless specified in the curriculum. (See "Degrees" above.)

(2) Science or mathematics, 12 semester hours.

(3) Education, 22 semester hours.

(4) Speech, 4 semester hours.

All students who elect the academic education curriculum will fulfill the preceding *general* requirements and also prepare to teach one or more school subjects which will involve meeting *specific* requirements in *particular* subject matter fields.

The *specific* requirements by subject fields are as follows:

English. A major in English requires 36 semester hours as follows:

Composition and Literature	12 semester hours
American Literature, Advanced.....	3 semester hours
Electives	21 semester hours

A minor in English requires 26 semester hours. It includes the 15 semester hours prescribed for the major and 11 hours of electives.

Electives must be chosen with the approval of the adviser who will guide the student in terms of College of Education records and recommendations of the English Department.

Social Sciences. For a major in this group 36 semester hours are required, of which at least 18 hours must be in history, including 6 hours in American history and 6 hours in European history. Six of the 18 hours must be in advanced courses. For a minor in the group, 24 hours are required, as specified below, less the electives. History (including one year each of American and

European History)	18 semester hours
Economics, sociology, government, consumer education, or geography	6 semester hours
Electives in social sciences	12 semester hours

Electives should be chosen so that there will be a total of at least 3 in Economics, 6 in Geography, 6 in Government and Politics, and 6 in Sociology.

Foreign Languages. All students preparing to teach French, German, or Spanish are required to take Comparative Literature 101 and 102 and are strongly advised to take the review course for majors. Further courses in comparative literature along with work in European or Latin American history are also recommended.

Specific minimum requirements in the three languages are a semester each of intermediate and advanced conversation (Fr., Ger., or Sp. 8 and 80), a semester of grammar review, six hours of introductory survey of the literature (Fr., Ger., Sp. 75 and 76), one semester of a Life and Culture Course (Fr., Ger., Sp. 161 or 162) and six hours in literature courses numbered 100 or above. If a foreign language is offered as a second field, all major requirements must be met.

Mathematics. A major in mathematics requires 30 semester hours and a minor, 20 semester hours. The following courses must be included in both major and minor: Math. 2—Solid Geometry (2), Math. 14—Plane Trigonometry (2), Math. 15—College Algebra (3), Math. 17—Analytic Geometry (4), and Math. 20, 21—Calculus (4,4).

Students who have had solid geometry in high school or who pass satisfactorily an examination in this subject need not take Math. 2. Electives in mathematics are selected with the advice of the adviser.

Science. In general science a major of 40 semester hours and a minor of 30 semesters hours are offered, each including the following courses: Chem. 1, 3—General Chemistry (4,4), Zool. 1—General Zoology (4), Bot. 1—General Botany (4), Phys. 10, 11—Fundamentals of Physics (4,4) or Phys. 1, 2—Elements of Physics (3, 3).

Other courses will be chosen subject to the approval of the student's major adviser and of the science department in which his interest lies.

Minors of 20 semester hours are offered in chemistry, in physics, and in biological sciences. A minor in biology must be supported by a one-year course in chemistry. A minor in physics must be supported by a one-year course in chemistry. A minor in chemistry must be supported by a one-year course in physics.

The requirements for major and minor are met if 52 semester hours in natural science, including the above listed courses, are offered.

Speech. A minor of 22 semester hours is offered in Speech. The minimum requirements for this minor are 12 semester hours in addition to the 10 semester hours of departmental requirements in Speech 1, 2, 3, and 4. The 12 semester hours above the departmental requirement must include 6 hours of courses numbered 100 or higher. It is the policy of the department to build a program of study in anticipation of the needs of prospective teachers, supervisors, correctionists, dramatic coaches, and other specialists in the general field of speech. All programs for the minor must be approved by the departmental adviser.

Academic Education Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
*Ed. 1—Freshman Orientation	0	0
Eng. 1, 2—Composition and American Literature.....	3	3
*Soc. 1—Sociology of American Life.....	3	....
Speech 1, 2—Public Speaking.....	2	2
*G. & P. 1—American Government.....	....	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 1, 3 (Men); P. E. 2, 4 (Women).....	1	1
Hea. 2, 4—Personal and Community Health (Women).....	2	2
Major and Minor Requirements	6	6
Total.....	16-18	16-18
<i>Sophomore Year</i>		
*Ed. 2—Introduction to Education.....	2	....
Eng. 3, 4—Composition and World Literature. or.....	3	3
Eng. 5, 6—Composition and English Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 5, 7 (Men); P. E. 6, 8 (Women).....	1	1
Major and Minor Requirements.....	3	3
Total.....	15-18	15-18

*May be taken either semester.

<i>Junior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
Major and Minor Requirements, Electives.....	13	13
Total.....	16	16
<i>Senior Year</i>		
*Ed. 140—Curriculum, Instruction and Observation.....	3 }	....
*Ed. 145—Principles of High School Teaching.....	3 }	....
*Ed. 148—Student Teaching in Secondary Schools.....	8 }	....
**Electives	2 }	....
*Major and Minor Requirements, Electives.....	....	16
Total.....	16	16

Agricultural Education

This curriculum is designed to prepare students for teaching vocational agriculture in high schools. To obtain full particulars on course requirements, the student should consult the catalog of the College of Agriculture.

Art Education

This curriculum is planned to meet the growing demand for special teachers and supervisors in art activity. Emphasis is placed upon ways to draw out and develop the creative inclinations of beginners; to integrate art and other areas of study; to utilize art in solving social problems. General requirements are the same as for the academic curriculum.

Art Education Curriculum

*Ed. 1—Freshman Orientation	0	0
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	....	3
G. & P. 1—American Government.....	3	....
Speech 1, 2—Public Speaking.....	2	2
Pr. Art 1—Design.....	....	3
Pr. Art 2—Survey of Art History.....	2	....
Hea. 2, 4—Hygiene (Women).....	2	2
A. S. 1, 2—Astr. Science (Men).....	3	3
Physical Activities.....	1	1
†Language or electives	1-5	2-4
Total.....	16-18	16-18

*May be taken either semester.

**English and Social Studies majors must elect Ed. 134.

†Required foreign language: 12 semester hours provided the student enters with less than three years of foreign language credit: 6 semester hours, if he enters with three years of such credit. No foreign language is required of any student who enters with four years of language credit.

	Semester	
	I	II
<i>Sophomore Year</i>		
Ed. 2—Introduction to Education.....	2	....
Eng. 3, 4—Composition and World Literature.....	3	3
Science or Mathematics.....	3	3
Cr. Art. 3—Creative Art Inspired by Primitive Art.....	2	....
Pr. Art 4—Three-dimensional Design.....	....	2
Pr. Art 20—Costume Design.....	3	....
Pr. Art 30—Typography and Lettering.....	....	3
Cr. 2—Simple Crafts.....	2	....
Pr. Art 3—Silk Screen Printing.....	....	2
Cr. 20—Ceramics.....	....	2
Cr. 30 Metalry.....	2	....
A. S. 3, 4—Air Science (Men).....	3	3
Physical Activities.....	1	1
*Electives	0	2
Total.....	16-18	16-18
<i>Junior Year</i>		
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
H. 5, 6—American History.....	3	3
Art 7—Landscape Painting.....	....	3
Pr. Art 0—Professional Lectures.....	....	0
Pr. Art 21—Action Drawing.....	2	....
Pr. Art 38—Photography.....	2	....
Pr. Art 40, 41—Interior Design.....	1	3
Cr. 5—Puppetry.....	3	....
Cr. 40—Weaving .....	....	2
*Language or electives.....	2-5	4
Total.....	16-18	16-18
<i>Senior Year</i>		
Ed. 140—Curriculum, Instruction and Observation.....	3	....
Ed. 145—Principles of High School Teaching.....	....	3 2 8 2
Ed. 134—Materials and Procedures for the Core Curriculum....	....	
**Ed. 148—Student Teaching in Secondary Schools.....	....	
Pr. Art 100—Mural Design.....	....	
Pr. Art 132—Advertising Layout.....	2	....
*Language or electives.....	11-13	....
Total.....	16-18	15

A minimum of 24 semester hours constitutes a minor in part for which the following courses are required: Pr. Art 1, Pr. Art 2. Electives may be selected from the student's chosen field of concentration—advertising, costume, interior, ceramics, metalry, or weaving—and from courses selected in consultation with the student's adviser. For teaching, Ed. 140—Curriculum, Instruction, and Observation should be included as well as electives chosen from among the following courses: Cr. 2, 3, 5, 20, 30, 40; Pr. Art 3, 4, 20, 21, 30, 38, 132, 140, 141.

*Required foreign language: 12 semester hours provided the student enters with less than three years of foreign language credit; 6 semester hours, if he enters with three years of such credit. No foreign language is required of any student who enters with four years of language credit.

**Available only during the last half of the spring semester.

Business Education

Two curricula are offered for the preparation of teachers of business subjects. The General Business Education Curriculum qualifies for teaching all business subjects except shorthand. Providing thorough training in general business, including economics, this curriculum leads to teaching positions on both junior and senior high school levels. By the proper selection of electives, persons following this curriculum may also qualify as teachers of social studies.

The Secretarial Education course is adapted to the needs of those who wish to become teachers of shorthand as well as other business subjects.

General Business Education Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
**Ed. 1—Freshman Orientation	0	0
Eng. 1, 2—Composition and American Literature.....	3	3
G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
O. T. 1—Principles of Typewriting.....	2	....
Speech 1, 2—Public Speaking.....	2	2
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Hea. 2, 4—Personal and Community Health (Women).....	2	2
P. E. 1, 3 (Men); P. E. 2, 4 (Women).....	1	1
Elect Math. 5, 6; H. 1, 2; or Science.....	3	3
†Electives	2	4
Total.....	18-19	18-19

Sophomore Year

**Ed. 2—Introduction to Education.....	2	....
Eng. 3, 4—Composition and World Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
B. A. 20, 21—Principles of Accounting.....	4	4
O. T. 2—Intermediate Typewriting.....	2	....
O. T. 10—Office Typewriting Problems.....	....	2
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 5, 7 (Men); P. E. 6, 8 (Women).....	1	1
Total.....	16-21	16-19

Junior Year

B. A. 180, 181—Business Law.....	4	4
B. A. 166—Business Communications.....	....	3
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
B. A. 112—Records Management.....	2	....
B. A. 114—Machines Management	3	....
Econ. 140—Money and Banking.....	....	3
*Electives	3	3
Total.....	15	16

*Required foreign language: 12 semester hours provided the student enters with less than three years of foreign language credit; 6 semester hours, if he enters with three years of such credit. No foreign language is required of any student who enters with four years of language credit.

**May be taken either semester.

†A minimum of 55 semester hours of courses in Economics, Business Administration, and Office Techniques are required.

<i>Senior Year</i>	Semester	
	I	II
Ed. 145—Principles of High School Teaching.....	....	3
Ed. 140—Curriculum, Instruction and Observation.....	....	3
Ed. 148—Student Teaching in Secondary Schools.....	....	8
B. A. 165—Office Management.....	3	....
B. Ed. 100—Techniques of Teaching Office Skills.....	2	....
*Electives and Requirements.....	10	....
Total.....	15	14

Secretarial Education Curriculum

Freshman Year

Same as General Business Curriculum

Sophomore Year

**Ed. 2—Introduction to Education.....	2	....
Eng. 3, 4—Composition and World Literature.....	3	3
H. 5, 6—History of American Civilization.....	3	3
O. T. 12, 13—Principles of Shorthand I, II.....	4	4
O. T. 2—Intermediate Typewriting.....	2	....
O. T. 10—Office Typewriting Problems.....	....	2
Econ. 37—Fundamentals of Economics.....	3	....
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 5, 7 (Men) ; P. E. 6, 8 (Women).....	1	1
*Electives .....	....	3
Total.....	16-21	16-19

Junior Year

H. D. Ed. 100, 101—Principles of Human Development.....	3	3
O. T. 110—Secretarial Work.....	....	3
O. T. 118—Gregg Shorthand Dictation.....	....	3
O. T. 116—Advanced Shorthand.....	3	....
O. T. 117—Transcription.....	2	....
B. A. 20, 21—Principles of Accounting.....	4	4
B. A. 112—Records Management.....	2	....
*Electives	2	3
Total.....	16	16

Senior Year

B. A. 114—Machines Management.....	3	....
B. A. 165—Office Management.....	3	....
B. A. 166—Business Communications.....	3	....
Ed. 145—Principles of High School Teaching.....	....	3
Ed. 140—Curriculum, Instruction, and Observation—Business Subjects.....	....	3
Ed. 148—Student Teaching in Secondary Schools.....	....	8
B. A. 180—Business Law.....	4	....
B. Ed. 100—Techniques of Teaching Office Skills	2	....
Total.....	15	14

*A minimum of 55 semester hours of courses in Economics, Business Administration, and Office Techniques are required.

**May be taken either semester.

Childhood Education

The childhood education curriculum has as its goal the preparation of nursery school and kindergarten teachers. It is also planned to further the personal development of the student and give training in home-making.

Observation and student teaching are done in the University Nursery School and Kindergarten on the campus and in approved schools in nearby communities. Each student is encouraged to select a minor in an allied field.

Graduates receive a B.S. degree and meet the requirements for certification for teaching kindergarten and nursery school in Maryland.

Childhood Education Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
*C. Ed. 2—Orientation, Observation, and Record taking	2	....
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Sp. 4—Voice and Diction.....	....	3
Botany 1—General Botany.....	4	....
Zool. 1—General Zoology .....	....	4
Hea. 2, 4—Personal and Community Health.....	2	2
P. E. 2, 4.....	1	1
*Ed. 1—Freshman Orientation	0	0
Total.....	15	16
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Eng. 5, 6—Composition and English Literature.....		
Hist. 5, 6—History of American Civilization	3	3
Music 16—Fundamentals of Music for the Classroom Teacher....	....	3
Ed. 52—Children's Literature.....	2	....
Foods 1—Introductory Foods	3	....
Nutrition 10—Elements of Nutrition.....	....	3
P. E. 6, 8.....	1	1
Electives	5	3
Total.....	17	16
<i>Junior Year</i>		
C. Ed. 100—Child Development I.....	3	....
C. Ed. 101—Child Development II.....	....	3
C. Ed. 115—Children's Activities and Activities Materials.....	....	3
C. Ed. 116—Creative Music for Young Children.....	3	....
C. Ed. 140—Curriculum, Instruction—		
Early Childhood Education .....	....	3
Nursing 9—Nursing and Child Health.....	....	2
Electives	10	5
Total.....	16	16

*May be taken either semester.

Senior Year	Semester	
	I	II
C. Ed. 149—Teaching Nursery School.....	4-8	...
C. Ed. 159—Teaching Kindergarten.....	...	4-8
H. Ed. 100, 101—Principles of Human Development.....	3	3
C. Ed. 145—Guidance in Behavior Problems.....	3	....
Ed. 147—Audio-Visual Education	...	2
Ed. 107—Philosophy of Education.....	2	....
Electives	0-4	3-7
Total.....	16	16

Marks in all required upper division courses in education and in subjects in major and minor fields must be C or higher. A general average of C or higher must be maintained. In order to be admitted to a course in student teaching, *a student must have a grade point average of 2.275*. Each student should have one summer of experience in working with children.

Elementary Education

There are two undergraduate curriculums in elementary education. The first one is for regular undergraduate students who desire to earn the Bachelor of Science degree and to qualify for an elementary school teaching certificate. The second curriculum is for teachers in service.

Elementary Education Curriculum for Regular Undergraduate Students

This curriculum is designed for regular undergraduate students who wish to qualify for teaching positions in elementary schools. Students who complete the curriculum will receive the Bachelor of Science degree, and they will meet the Maryland State Department of Education requirements for the "Bachelor of Science Certificate in Elementary Education." The curriculum also meets certification requirements in many other states, Baltimore, and the District of Columbia.

Some of the academic courses need not be taken in the indicated sequence. For example, Botany 1 may be taken during the second semester of the freshman year instead of the first semester, or it may be taken during the sophomore or junior year. However, the courses in Human Development Education and certain other Education courses must be taken during the junior year, and Ed. 148—Student Teaching in Elementary Schools should be taken during the first semester of the senior year. To be admitted to student teaching, a student must have a grade point average of 2.275.

Freshman Year	Semester	
	I	II
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1— American Government	...	3
Bot. 1—General Botany	4	....
Zool. 1—General Zoology	...	4
Art. 15—Fundamentals of Art	3	....
Music 16—Music Fundamentals for the Classroom Teacher.....	...	3
*Ed. 1—Freshman Orientation	0	....
P. E. 1, 3 (men) P. E. 2, 4 (women).....	1	1
Health 2, 4—Personal and Community Health (Women).....	2	2
A. S. 1, 2 (Men)—Basic Air Force ROTC.....	3	3
Approved Electives (Optional)		
Totals: Women	16	16
Men	17	17

*May be taken either semester.

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature		
or Eng. 5, 6—Composition and English Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Geog. 10—General Geography	3	....
Speech 4—Voice and Diction.....	....	3
*Ed. 2—Introduction to Education.....	2	....
Chem. 1—General Chemistry	3	....
or Astr. 1—Astronomy		
or Geog. 30 (Prin. of Morphology)		
or Geog. 40 (Prin. of Meteorology)		
or Physics 1 (Elements of Physics)		
Chem. 3—General Chemistry.....	....	3
or Foods 1—Introductory Foods		
or Nutrition 10—Elements of Nutrition		
or one of the other physical science courses listed above.		
Note: Only one Geography and only one Foods course may be taken.		
Math. 0—Basic Mathematics (If required)	....	0
P. E. 5, 7 (Men); P. E. 6, 8 (Women).....	1	1
Health 40—Personal and Community Health (Men).....	....	3
A. S. 3, 4 (Men) Basic Air Force ROTC.....	3	3
†Approved Electives (Women)	2	4
Totals: Women	17	17
Men	18	19
<i>Junior Year.</i>		
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
Hist. 1, 2—History of Modern Europe.....	3	3
Math. 10—College Algebra	3	....
or Math 5—General Mathematics		
Ed. 52—Childrens Literature	2	....
**Ed. 153—Teaching of Reading.....	....	2
**Ed. 121—The Language Arts in the Elementary School.....	....	2
**Ed. 122—Social Studies in the Elementary School.....	....	2
**Ed. 124—Arithmetic in the Elementary School.....	....	2
**Sci. Ed. 105—Workshop in Science for Elementary Schools.....	....	2
†Approved Electives	6	....
Totals	17	16
<i>Senior Year</i>		
Ed. 149—Student Teaching in Elementary Schools.....	16	....
Geog. 100—Regional Geography of Eastern Anglo-America.....	....	3
or Geog. 101—Regional Geography of Western Anglo-America		
or Geog. 120—Economic Geography of Europe		
Two of the following courses:		
P. E. 120—Physical Education in the Elementary School.....	}	4-5
Mus. Ed. 128—Workshop in Music for Elementary Schools.....		
Ed. 125—Art in Elementary Schools.....		
†Approved Electives .....	....	10
Totals	16	17-18

*May be taken either semester.

**Open only to students in elementary curriculum. Students who register for one double starred course must register for all five courses.

†Number of elective hours and choice of courses must be approved by adviser. Several electives must be taken at the 100 level.

Area of Specialization in Elementary School

Physical Education and Health Education

Students enrolled in the College of Education and majoring in elementary education may pursue an area of specialization in elementary school physical education and health education, and thereby qualify for the "Bachelor of Science Certificate in Special Subjects." In order to fulfill the requirements in these areas, students should follow the prescribed plan for a major in elementary education. In addition, the following courses should be taken:

Men: P. E. 1 and 3 (1, 1); P. E. 5 and 7 or P. E. 50 and 60 (1, 1); Hea. 40 (3); Hea. 50 (2); Hea. 110 (2); Hea. 114 (2); P. E. 55 (2); P. E. 120 (3); P. E. 130 (3); P. E. 191 (3); P. E. 195 (3); Zool. 1 (4); Zool. 14 (4); Zool. 15 (4).

Women: P. E. 2 and 4 (1, 1); P. E. 6 and 8 or P. E. 50 and 60 (1, 1); Hea. 2 and 4 (2, 2); Hea. 50 (2); Hea. 110 (2); Hea. 114 (2); P. E. 55 (2); P. E. 120 (3); P. E. 130 (3); P. E. 191 (3); P. E. 195 (3); Zool. 1 (4); Zool. 14 (4); Zool. 15 (4).

Area of Specialization in Elementary School Music Education

Students enrolled in the College of Education and majoring in elementary education may pursue an area of specialization in elementary school music education, and thereby qualify for the "Bachelor of Science Certificate in Special Subjects." In order to fulfill requirements in this area, the following courses should be taken in addition to those required in the Elementary School Curriculum:

Mus. 1 (3); Mus. 8 (3); Mus. 50 or 160 or 161 (2); Mus. 70, 71 (3, 3); Mus. 80, 81 (2, 2); Applied Music: Piano (8), Voice (4); P. E. 50 (1); and Mus. Ed. 139 (3) in place of Mus. Ed. 128 (2) in the senior year.

Elementary Education Curriculum for Undergraduate Teachers

This curriculum is for teachers who have completed a two- or three-year curriculum in a teachers college. It is also for teachers who have two or more years of successful teaching experience which can be used in lieu of student teaching to meet certification requirements.

This curriculum, leading to the Bachelor of Science degree in elementary education, requires a total of 128 semester credits. The last 30 credits earned before the conferring of the degree must be taken with the University of Maryland.

State Department of Education requirements provide that a teacher in service may not earn more than six credits for certification purposes during a school year. The College of Education assumes no responsibility in this connection, but candidates are advised to observe the regulation.

Specific requirements for the degree are as follows: (In meeting requirements, particular attention must be given to the footnotes.)

Requirements for individuals with approximately 64 transfer credits:

Education	4
*English (not including freshman and sophomore English).....	10
**Natural Science (chemistry, physics, botany, zoology, bacteriology, entomology, general science, meteorology).....	10
***Social Science (history, government, sociology, economics, geography) 12	
Electives (As many as needed to give a total of at least 128 credits)	

Requirements for individuals with approximately 96 transfer credits:

Education	2
*English (not including freshman and sophomore English).....	6
**Natural Science (as above).....	6
***Social Science (as above).....	12
Electives (As many as needed to give a total of at least 128 credits)	

Home Economics Education

The Home Economics Education curriculum is designed for students who are preparing to teach vocational or general home economics or to engage in any phase of home economics work which requires a knowledge of teaching methods. It includes studies of all phases of home economics and the allied sciences, with professional training for teaching these subjects. A student majoring in this curriculum may also qualify for a science minor.

Students electing this curriculum may register in the College of Education or in the College of Home Economics.

Home Economics Education Curriculum

<i>Freshman Year</i>	<i>(Semester)</i>	
	<i>I</i>	<i>II</i>
†Ed. 1—Freshman Orientation	0	0
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Speech 1, 2—Public Speaking.....	2	2
H. E. 1—Home Economics Lectures.....	1	....
Pr. Art 1—Design.....	3	....
Hea. 2, 4—Personal and Community Health.....	2	2
P. E. 2, 4.....	1	1
Tex. 1—Textiles	3	....
Elective .....	....	6
Total.....	18	17

*If less than 12 credits were earned in English during the first two years of college, the deficiency must be made up in addition to the credits specified above.

**Not more than four semester hours of Science Education and other approved substitutions for regular science courses will be counted toward the natural science requirements.

***If the transfer credits did not include at least 3 credits in American Government, 3 credits in Introductory Sociology, and 6 credits in American History, those deficiencies must be made up in addition to the 12 social studies credits specified above.

†May be taken either semester.

	Semester	
	I	II
<i>Sophomore Year</i>		
**Ed. 2—Introduction to Education.....	2	0
Eng. 3, 4—Composition and World Literature, or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
H. 5, 6—History of American Civilization.....	3	3
Chem. 11, 13—General Chemistry.....	3	3
Pr. Art 20—Costume Design.....	3	....
Clo. 20A—Clothing.....	....	3
Foods 2, 3—Foods.....	3	3
P. E. 6, 8.....	1	1
Total.....	18	16

<i>Junior Year</i>		
H. E. Ed. 140—Curriculum, Instruction, and Observation.....	....	3
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
Home Mgt. 150, 151—Home Management.....	3	3
Foods 101—Meal Service.....	....	2
Clo. 22—Clothing Construction.....	....	2
Nut. 110—Elements of Nutrition	3	....
Pr. Art 2—Survey of Art History.....	2	....
Pr. Art 40—Interior Design.....	1	....
Econ. 37—Fundamentals of Economics.....	....	3
Zool. 16—Human Physiology.....	4	....
Total.....	16	16

<i>*Senior Year</i>		
H. E. Ed. 102—Problems in Teaching Home Economics.....	....	3
H. E. Ed. 148—Teaching Secondary Vocational Home Economics	....	2
Ed. 145—Principles of High School Teaching.....	....	3
Home Mgt. 152—Practice in Management of the Home.....	....	3
Bact. 51—Household Bacteriology.....	3	....
Bot. 1—General Botany.....	4	....
Electives	9	....
Total.....	16	17

Industrial Education

Three curriculums are administered by the Industrial Education Department: (1) Industrial Arts Education, (2) Vocational-Industrial Education, and (3) Education for Industry. The overall offering includes both undergraduate and graduate programs leading to the degrees of: Bachelor of Science, Master of Education, Master of Arts, Doctor of Education and Doctor of Philosophy.

The Industrial Arts Education curriculum prepares people to teach industrial arts at the secondary school level. It is a four-year program leading to a Bachelor of Science degree. While trade or industrial experience contributes significantly to the background of the industrial arts teacher, previous work experience is not a condition of entrance into this curriculum. Students who are enrolled in the curriculum are encouraged to obtain work in industry during the summer months. Industrial arts as a secondary school subject area is a part of the general education program characterized by extensive shopwork and laboratory experiences.

*Subjects in the senior year will be so arranged that the two semesters may be interchanged.

**May be taken either semester.

The Vocational-Industrial Curriculum may lead either to certification as a vocational-industrial teacher with no degree involved or to a Bachelor of Science degree, including certification. The University of Maryland is designated as the institution which shall offer the "Trade and Industrial" certification courses and hence the courses which are offered are those required for certification in Maryland. The Vocational-Industrial Curriculum requires trade competence as specified by the *Maryland State Plan for Vocational Education*. A person who aspires to take the certification courses should review the State plan and he may well contact Maryland State Department of Education officials. If the person has in mind teaching in a designated city or county he may discuss his plans with the vocational-industrial official of that city or county inasmuch as there are variations in employment and training procedures.

Industrial Arts Education

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
*Ed. 1—Freshman Orientation	0	0
Eng. 1, 2—Composition and American Literature.....	3	3
Speech 1, 2—Public Speaking.....	2	2
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government .....	....	3
Ind. Ed. 1—Mechanical Drawing.....	2	....
Ind. Ed. 34—Graphic Arts I.....	....	3
Ind. Ed. 2—Elementary Woodworking.....	2	....
Ind. Ed. 22—Machine Woodworking I.....	....	2
Ind. Ed. 12—Shop Calculations.....	....	3
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 1, 3—Physical Activities.....	1	1
Total	16	20

Sophomore Year

*Ed. 2—Introduction to Education.....	2	....
Eng. 3, 4—Composition and World Literature, or.....	3	3
Eng. 5, 6—Composition and English Literature.....	3	3
His. 5, 6—History of American Civilization.....	3	3
Ind. Ed. 21—Mechanical Drawing.....	2	....
Ind. Ed. 28—Electricity I.....	....	2
Ind. Ed. 26—General Metals	3	....
Chem. 1, 3—General Chemistry.....	4	4
Math. 10—Algebra.....	....	3
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 5, 7—Physical Activities.....	1	1
Total.....	21	19

*May be taken either semester.

Junior Year.

H. D. Ed. 100, 101—Principles of Human Development.....	3	3
Physics 1, 2—Elements of Physics.....	3	3
Ind. Ed. 41—Architectural Drawing.....	2	....
Ind. Ed. 48—Electricity II.....	....	2
Ind. Ed. 33—Automotives I.....	3	....
Ind. Ed. 160—Essentials of Design.....	....	2
Ind. Ed. 164—Shop Organization and Management.....	....	2
Ind. Ed. 166—Educational Foundations of Industrial Arts.....	2	....
Ed. 161—Principles of Guidance.....	....	2
*Electives—(shop and/or drafting).....	2	2
Electives—(unspecified)	2	2
Total.....	17	18

Senior Year

Ind. Ed. 140—Curriculum, Instruction and Observation, Ind. Ed.	3	....
Ind. Ed. 148—Student Teaching in Secondary Schools.....	8	....
Ed. 145—Principles of High School Teaching.....	3	....
Ind. Ed. 23—Arc and Gas Welding.....	....	1
Ind. Ed. 69—Machine Shop Practice I.....	....	2
Ind. Ed. 105—General Shop.....	....	2
Ind. Ed. 110—Foundry.....	....	1
Econ. 37—Fundamental of Economics.....	....	3
*Electives—(shopwork and/or drafting).....	....	4
Electives—(professional courses).....	....	5
Total.....	14	18

Vocational-Industrial Certification

A total of 240 clock hours of instruction is required for vocational-industrial teacher certification. The courses listed below are currently required:

Ind. Ed. 50—Methods of Teaching

Ind. Ed. 60—Observation and Demonstration Teaching

Ind. Ed. 164—Shop Organization and Management

Ind. Ed. 168—Trade or Occupational Analysis

Ind. Ed. 169—Course Construction

Ind. Ed. 170—Principles of Vocational Education, and/or

Ind. Ed. 171—History of Vocational Education

*After the student has completed the basic courses in drafting, woodworking, metal-working, graphic arts and automotives he is to select advanced courses in one or more of these areas as advised.

**May be taken either semester.

"The remainder of the 240 clock hours are to be met through elective industrial education courses offered by the University of Maryland and approved by the State supervisor of industrial education."* Among the courses from which electives may be chosen there are:

Ind. Ed. 150—Training Aids Development

Ind. Ed. 157—Tests and Measurements

Ind. Ed. 161—Principles of Vocational Guidance

Ind. Ed. 165—Modern Industry

Ind. Ed. 167—Problems in Occupational Education

**Ind. Ed. 220—Organization, Administration and Supervision of Vocational Education

Ind. Ed. 240—Research in Industrial Arts and Vocational Education

Ind. Ed. 248—Seminar in Industrial Arts and Vocational Education

Ed. 150—Educational Measurement

Ed. 160—Educational Sociology

Ed. 161—Principles of Guidance

Ed. 253—Guidance Information

Ed. 261—Case Studies in School Counseling

Ed. 269—Seminar in Guidance

A person in vocational-industrial education may use his certification courses toward a Bachelor of Science degree. In doing so the general requirements of the College of Education must be met. A maximum of twenty semester hours of credit may be earned through examination in the trade in which the student has competence. Prior to taking the examination, the student shall provide documentary evidence of his apprenticeship or learning period and journeyman experience. For further information about credit by examination refer to the Academic Regulations of the University of Maryland.

Education for Industry

The Education for Industry curriculum is a four-year program leading to a Bachelor of Science degree. The purpose of the program is to prepare persons for jobs within industry and, as such, it embraces four major areas of competence, (a) technical competence, (b) human relations and leadership competence, (c) communications competence, and (d) social and civic competence. The student who is enrolled in this curriculum is required to obtain work in industry in accordance with the plan described in the course, Industrial Education 124 a, b.

*Maryland (State Department of Education). *The Maryland State Plan for Vocational Education 1947-1952*, p. 108.

**A course bearing a "200" number is open only to graduate students.

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Ind. Ed. 1—Mechanical Drawing.....	2	....
Ind. Ed. 12—Shop Calculations.....	3	....
Ind. Ed. 21—Mechanical Drawing.....	....	2
Ind. Ed. 22—Machine Woodworking I.....	2	....
Ind. Ed. 23—Arc and Gas Welding.....	....	1
Ind. Ed. 69—Machine Shop Practice I.....	....	2
Ind. Ed. 110—Foundry.....	....	1
Sp. 7—Public Speaking.....	2	....
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 1, 3—Physical Activities.....	1	1
Math. 10—Algebra or		
Math. 15—College Algebra.....	....	3
Total.....	19	19
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature or.....	3	3
Eng. 5, 6—Composition and English Literature.....	3	3
Ind. Ed. 24—Sheet Metal Work.....	2	....
B. A. 10, 11—Organization and Control.....	2	2
Phys. 1, 2—Elements of Physics or		
Phys. 10, 11—Fundamentals of Physics.....	3 or 4	3 or 4
Math. 11—Trigonometry and Analytic Geometry or.....		
Math. 14—Plane Trigonometry.....	2 or 3	
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
P. E. 5, 7—Physical Activities.....	1	1
H. 5—History of American Civilization.....	....	3
Econ. 37—Fundamentals of Economics.....	....	3
Total.....	16, 17 or 18	18 or 19
<i>Junior Year</i>		
H. 6—History of American Civilization.....	3	....
Psych. 1—Introduction to Psychology.....	3	....
Psych. 2—Applied Psychology.....	....	3
Chem. 1, 3—General Chemistry.....	4	4
Econ. 160—Labor Economics.....	3	....
*Ind. Ed. 124a—Organized and Supervised Work Experience.....	3	....
Ind. Ed. 143, 144—Industrial Safety Education.....	2	2
B. A. 160—Personnel Management.....	....	3
Soc. 115—Industrial Sociology.....	....	3
Electives.....	3	3
Total.....	21	18

*Must be pursued concurrently with the regular Summer Sessions between the sophomore and junior and the junior and senior years respectively.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
B. A. 163—Industrial Relations.....	3	....
B. A. 167—Job Evaluation and Merit Rating.....	2	....
*Ind. Ed. 124b—Organized and Supervised Work Experience.....	3	....
Ind. Ed. 164—Shop Organization and Management.....	....	2
Ind. Ed. 165—Modern Industry.....	....	2
Ind. Ed. 168—Trade or Occupational Analysis.....	2	....
Psych. 121—Social Psychology.....	....	3
Electives.....	5	8
Total.....	15	15

Music Education

The Music Education curriculum affords pre-service preparation in the specialized field of music education and leads to the degree of Bachelor of Science in Education with a major in Public School Music. The curriculum provides training in both the choral and instrumental fields of music and is planned to meet the growing demand for special teachers and supervisors in those areas. In the senior year the student may concentrate on either elementary-school or secondary-school requirements.

The major in music education must include 20 semester hours in applied music with at least Music 53 on a principal instrument and four to six semester hours in ensemble (orchestra, chorus, etc.).

A minor in the field may be received with 24 semester hours in music education, theory, and history; 8 semester hours in applied music; two semester hours in ensemble; Ed. 140 in music; and student teaching divided between the student's major and minor fields. The 24 specified hours must include Music 1, 7, 8, 17, 18, 50, 70, 80 or 81, and 121.

Music Education Curriculum

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Ed. 1—Freshman Orientation	0	....
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	...	3
Music 1—Introduction to Music.....	....	3
Music 7, 8—Theory of Music.....	3	3
Applied Music	2	2
P. E. 50—Rhythmic Analysis and Movement.....	1	....
A. S. 1, 2—Basic Air Force ROTC (Men).....	3	3
Ensemble—Music 4, 5, 6, 10 or 15.....	1	1
Hea. 2, 4—Personal and Community Health (Women).....	2	2
P. E. 1, 3—(Men); P. E. 2, 4—(Women).....	1	1
Total	16-17	18-19

*Must be pursued concurrently with the regular Summer Sessions between the sophomore and junior and the junior and senior years respectively.

Sophomore Year

	Semester	
	I	II
*Ed. 2—Introduction to Education.....	2	0
Eng. 3, 4 or 5, 6—Composition and World or English Literature.....	3	3
Mathematics or Natural Science.....	3	3
Music 17, 18—Dictation and Sight-Singing.....	2	2
Music 70, 71—Harmony	3	3
Applied Music—Class Voice or Class Piano.....	2	2
Applied Music	2	2
Ensemble—Music 4, 5, 6, 10, or 15.....	1	1
A. S. 3, 4—Basic Air Force ROTC (Men).....	3	3
P. E. 5, 7—(Men); P. E. 6, 8—(Women).....	1	1
Total	19-22	17-20

Junior Year

History 5, 6—History of American Civilization.....	3	3
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
Speech 4—Voice and Diction.....	3	....
Music 80, 81 Class Study of Instruments.....	2	2
Music 120, 121—History of Music.....	3	3
Music 150—Keyboard Harmony .....	....	2
Music 160, 161—Advanced Conducting Methods.....	2	2
Applied Music	2	2
Ensemble—Music 4, 5, 6, 10 or 15.....	1	1
Total	19	18

Senior Year (Secondary school concentration).

Ed. 140—Curriculum, Instruction and Observation	3	....
Ed. 145—Principles of High School Teaching	3	....
Ed. 148—Student Teaching in the Secondary Schools .....	....	8
Music. Ed. 132—Workshop in Music in the Secondary School....	....	2
Applied Music	2	2
Electives	3	....
Ensemble—Mus. 4, 5, 6, 10, or 15.....	1	....
Total	12	12

Senior Year (Elementary school concentration).

Ed. 52—Children's Literature	2	....
Ed. 149—Student Teaching in the Elementary School.....	....	8
Mus. Ed. 128—Workshop in Music for the Elementary School ....	....	2
Mus. Ed. 139—Music in the Elementary School.....	3	....
Mus. Ed. 170—Materials and Methods for Class Piano Instruction	2	....
Applied Music	2	2
Ensemble—Music 4, 5, 6, 10, or 15	1	....
Electives	5	....
Total	15	12

*May be taken either semester.

Physical Education and Health Education

For detailed information on these curricula and courses, see College of Physical Education, Recreation and Health catalog.

Curricula for Physical Education and Health Education

The curricula in Physical Education and Health Education are designed to prepare students for teaching and for work involving educational techniques in these fields.

The Health Education and Physical Education curricula lead primarily to teaching and supervising such work in schools and colleges.

All applicants must be free of handicapping physical defects and be approved by the medical director and by the Dean of College of Physical Education, Recreation and Health.

Any student enrolled in the College of Education who meets the above requirements may develop a minor in one of these areas by completing 20 hours of work in that area and 4 hours in a cognate area as described below, and as planned in consultation with his adviser and with written approval of the Dean of the College of Physical Education, Recreation and Health.

Note: To be certified to teach physical education in Maryland, 30 semester hours are required in this area, including the following or equivalent: Zool. 14, 15; Hea. 50; P. E. 100, 140; Ed. 145; and Ed. 148, including at least 25 hours of student teaching.

Minor in Health Education

Thirteen (13) semester hours in Health Education and 12 semester hours in related areas.

Required courses:

Hea. 2, 4, or Hea. 40 (Women): Hea. 40 (Men); Hea. 50 (2), Hea. 110 (2), Hea. 120 (3) and Hea. 150 (3).

Elective courses in related areas:

Six (6) semester hours of biological sciences and 6 semester hours of psychology or Human Development.

Minor in Safety Education

Students wishing to obtain a minor in Safety Education and become certified to teach Driver Education in junior and senior high schools should take the following courses: Hea. 50 (2), Hea. 70 (3), Hea. 80 (3), Hea. 105 (3), and Hea. 145 (3).

MEN

Physical Education Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Zool. 1—General Zoology.....	....	4
Sp. 4—Voice & Diction.....	3	....
P. E. 20—Orientation to Measurement.....	....	2
P. E. 30—Introduction to Physical Education, Recreation, and Health.....	3	....
P. E. 50—Phytnmic Analysis and Movement.....	1	....
P. E. 60—Basic Rhythm Skills.....	....	1
P. E. 61, 63—Sport Skills and Gymnastics.....	2	2
A. S. 1, 2—Basic Air Force R. O. T. C.....	3	3
Total.....	18	18
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Phys. 1—Elements of Physics.....	3	....
Hea. 40—Personal and Community Health.....	....	3
P. E. 65, 67—Sport Skills and Gymnastics.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C.....	3	3
Total.....	18	18
<i>Junior Year.</i>		
H. D. Ed. 100, 101—Principles of Human Development I, II.....	3	3
P. E. 100—Scientific Bases of Movement.....	4	....
P. E. 101, 103—Organization and Officiating in Intramurals.....	2	2
P. E. 113, 115—Methods and Materials for Secondary Schools....	3	1
P. E. 123 or 125—Coaching Athletics.....	3	....
P. E. 180—Measurement in Physical Education and Health.....	....	3
Hea. 50—First Aid and Safety.....	....	2
Electives	2	3
Total.....	17	19
<i>Senior Year</i>		
P. E. 140—Curriculum, Instruction and Observation.....	....	3
P. E. 160—Scientific Bases of Movement Applied.....	3	....
P. E. 190—Administration and Supervision of Physical Education, Recreation and Health.....	....	3
Ed. 145—Principles of High School Teaching.....	....	3
Ed. 148—Student Teaching in the Secondary Schools.....	....	3
Electives	12	....
Total.....	15	17

NOTE: Ed. 148 may be scheduled either semester. Ed. 145, P. E. 140 and P. E. 190 must be scheduled concurrently.

WOMEN

Freshman Year

	Semester	
	I	II
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Zool. 1—General Zoology.....	....	4
Sp. 4—Voice and Diction.....	3	....
P. E. 20—Orientation to Measurement.....	....	2
P. E. 30—Introduction to Physical Education, Recreation, and Health.....	3	....
P. E. 40—Basic Body Controls.....	1	....
P. E. 50—Rhythmic Analysis and Movement.....	1	....
P. E. 60—Basic Rhythm Skills.....	....	1
P. E. 52—Dance Techniques.....	....	1
P. E. 62, 64—Elementary Techniques of Sports and Gymnastics..	2	2
Total.....	16	16

NOTE: P. E. 72 and/or 74 may be required depending upon swimming ability of student.

Sophomore Year

Eng. 3, 4—Composition and World Literature.....	3	3
History 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Phys. 1—Elements of Physics.....	3	....
Hea. 40—Personal and Community Health.....	....	3
P. E. 54—Dance Techniques.....	1	....
P. E. 56—Methods and Materials in Dance.....	....	2
P. E. 66, 68—Techniques of Sports.....	2	2
P. E. 82—Officiating.....	1	....
Total.....	17	17

NOTE: P. E. 76 may be required depending upon swimming ability of student.

Junior Year

H. D. Ed. 100, 101—Principles of Human Development I, II.....	3	3
P. E. 78—Methods of Teaching Aquatics.....	....	2
P. E. 100—Scientific Bases of Movement.....	4	....
P. E. 114, 116—Methods and Materials for Secondary Schools....	3	3
P. E. 124, 126—Methods and Materials in Team Sports.....	2	2
P. E. 180—Measurement in Physical Education and Health.....	3	....
Hea. 50—First Aid and Safety.....	....	2
Electives.....	....	3
Total.....	15	15

	Semester	
	I	II
<i>Senior Year</i>		
P. E. 140—Curriculum, Instruction, and Observation.....	....	3
P. E. 160—Scientific Bases of Movement Applied.....	3	....
P. E. 190—Administration and Supervision of Physical Education, Recreation and Health.....	....	3
Ed. 148—Student Teaching in Secondary Schools.....	....	8
Ed. 145—Principles of High School Teaching.....	....	3
Electives	12	....
Total.....	15	17

NOTE: When Ed. 148 is taken, Ed. 145, P. E. 140 and P. E. 190 must also be scheduled concurrently.

MEN

Health Education Curriculum

Freshman Year

Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government .....	....	3
Zool. 1—General Zoology .....	....	4
Sp. 4—Voice and Diction	3	....
Hea. 10—Orientation to Health Education.....	....	1
Hea. 30—Introduction to Physical Education, Rec. and Hea.....	3	....
P. E. 1, 3—Conditioning and Fitness Exercises.....	1	1
Chem. 11, 13—General Chemistry.....	3	3
A. S. 1, 2—Basic Air Force ROTC.....	3	3
Total.....	19	18

Sophomore Year

Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Hea. 40—Personal and Community Health.....	3	....
Hea. 50—First Aid and Safety.....	....	2
Hea. 70—Safety Education .....	....	3
P. E. 5, 7—Sports and Other Recreational Activities.....	1	1
A. S. 3, 4—Basic Air Force ROTC.....	3	3
Electives	2	....
Total.....	19	19

Junior Year

Bact. 1—General Bacteriology	4	....
Bact. 105—Epidemiology and Public Health.....	....	4
Nut. 10—Elements of Nutrition .....	....	3
Ed. 150—Educational Measurement or Hea. 180— Measurement in Physical Education and Hea.....	2-3	....
Hea. 110—Introd. to School and Community Hea. Services.....	2	....
Hea. 120—Methods and Materials of School Hea. Educ.....	....	3
H. D. Ed. 100, 101—Principles of Human Development I and II..	3	3
Psych. 1—Introduction to Psychology.....	3	....
Psych. 5—Mental Hygiene .....	....	3
Electives	2	2
Total.....	16-17	18

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Hea. 140—Curriculum, Instruction and Observation.....	3	....
Hea. 150—Problems of the School Child in El. & Sec. Sch.....	....	3
Ed. 110—The Teacher and School Administrator or Hea. 190—Organization and Administration of Hea.....	2-3	....
Ed. 145—Principles of High School Teaching.....	3	....
Ed. 148—Student Teaching in the Secondary Schools.....	8	....
Electives .....	....	12
Total.....	16-17	15

WOMEN

<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life	3	....
G & P 1—American Government.....	....	3
Zool. 1—General Zoology .....	....	4
Sp. 4—Voice and Diction	3	....
Hea. 10—Orientation to Health Education.....	....	1
Hea. 30—Introduction to Physical Education, Recreation & Health	3	....
P. E. 2, 4—Basic Skills of Sports and Rhythms.....	1	1
Chem. 11, 13—General Chemistry	3	3
Electives	2	3
Total.....	18	18

<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Hea. 40—Personal and Community Health.....	3	....
Hea. 50—First Aid and Safety.....	....	2
Hea. 70—Safety Education .....	....	3
P. E. 6, 8—Selected Sports and Dance.....	1	1
Electives	3	2
Total.....	17	18

<i>Junior Year</i>		
Bact. 1—General Bacteriology	4	....
Bact. 105—Epidemiology and Public Health.....	....	4
Nut. 10—Elements of Nutrition .....	....	3
Ed. 150—Education Measurement or Hea. 180— Measurement in Physical Education and Health.....	2-3	....
Hea. 110—Introduction to School and Community Health Services	2	....
Hea. 120—Methods and Materials of School Health Education....	....	3
H. D. Ed. 100, 101—Principles of Human Development I & II....	3	3
Psych 1—Introduction to Psychology.....	3	....
Psych. 5—Mental Hygiene .....	....	3
Electives	3	2
Total.....	17-18	18

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Hea. 140—Curriculum, Instruction and Observation.....	3	....
Hea. 150—Problems of the School Child in Elem. & Sec. Schools..	....	3
Ed. 110—The Teacher and School Administrator or Hea. 190—Organization and Administration of Health.....	2-3	....
Ed. 145—Principles of High School Teaching.....	3	....
Ed. 148—Student Teaching in the Secondary Schools.....	8	....
Electives .....	....	12
Total.....	16-17	15

COURSE OFFERINGS

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students has registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designated by numbers as follows:

1 to 99: courses for undergraduates.

100 to 199: courses for advanced undergraduates and graduates. (Not all courses numbered 100 to 199 may be taken for graduate credit.)

200 to 299: courses for graduates only.

A course with a single number extends through one semester. A course with a double number extends through two semesters. The number of credit hours is shown by the arabic numeral in parentheses after the title of the course.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

EDUCATION

Courses Primarily for Freshmen and Sophomores

Ed. 1. Freshman Orientation (0).

Required of all freshmen.

(Schneider)

Ed. 2. Introduction to Education (2).

First and second semesters. Required of sophomores in Education. Section 1—Elementary; Section 2—Secondary. An exploratory course designed to introduce students to responsibilities of teachers for understanding their pupils, the way learning takes place, the need for planning, types of competencies needed, and certification requirements. Laboratory fee, \$1.00.

(Schneider-O'Neill)

Ed. 6. Observation of Teaching (1).

Twenty hours of directed observation. Reports, conferences, and criticisms.

Ed. 52. Children's Literature (2).

First and second semesters. Prerequisite, English 1, 2. A study of literary values in prose and verse for children. (Bryan)

Ed. 90. Development and Learning (3).

A study of the principles of learning and their application to school situations. Designed to meet the usual teacher-certification requirement for educational psychology.

For Advanced Undergraduates and Graduates**Ed. 100. History of Education I (2).**

A study of educational institutions and thought through the ancient, mediaeval, and early modern periods. (Wiggin)

Ed. 101. History of Education II (2).

Emphasis is placed on the post-Renaissance periods. (Wiggin.)

Ed. 102. History of Education in the United States (2).

A study of the origins and development of the chief features of the present system of education in the United States. (Wiggin.)

Ed. 105. Comparative Education—European (2).

A study of national systems of education with the primary purpose of discovering their characteristic differences and formulating criteria for judging their worth.

Ed. 106. Comparative Education—Latin American (2).

This course is a continuation of Ed. 105, with emphasis upon the national educational systems of the Western Hemisphere.

Ed. 107. Philosophy of Education (2).

A study of the great educational philosophers and systems of thought affecting the development of modern education. (Wiggin.)

Ed. 121. The Language Arts in the Elementary School (2).

Teaching of spelling, handwriting, oral and written expression, and creative expression. Special emphasis given to skills having real significance to pupils.

Ed. 122. The Social Studies in the Elementary School (2).

Consideration given to curriculum, organization and methods of teaching, evaluation of newer materials, and utilization of environmental resources. (O'Neill.)

Ed. 123. The Child and the Curriculum (2).

Relationship of the elementary school curriculum to child growth and development. Recent trends in curriculum organization; the effect of environment on learning; readiness to learn; and adapting curriculum content and methods to maturity levels of children.
(Denecke.)

Ed. 124. Arithmetic in the Elementary School (2).

Emphasis on materials and procedures which help pupils sense arithmetical meanings and relationships. Helps teachers gain a better understanding of the number system and arithmetical processes.
(Schindler.)

Ed. 125. Art in Elementary Schools (2).

Concerned with art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools.

Ed. 126. The Elementary School Curriculum (2).

Developments in elementary education with particular attention to methods and materials which may be used to improve the development of pupils in elementary schools.
(Denecke.)

Ed. 127. Teaching in Elementary Schools (2-6).

An overview of elementary school teaching designed for individuals without specific preparation for elementary school teaching or for individuals without recent teaching experience.

***Ed. 130. Theory of the Junior High School (2).**

A general overview of the junior high school. Purposes, functions, and characteristics of this school unit; a study of its population, organization, program of studies, methods, staff, and other similar topics, together with their implications for prospective teachers.

***Ed. 131. Theory of the Senior High School (2).**

The secondary school population; the school as an instrument of society; relation of the secondary school to other schools; aims of secondary education; curriculum and methods; activities; guidance and placement; teacher certification and employment in Maryland and the District of Columbia.

Ed. 133. Methods of Teaching the Social Studies (2).

Designed to give practical training in the everyday teaching situations. Use of various lesson techniques, audio and visual aids, reference materials, and testing programs and the adaption of teaching methods to individual and group differences. Present tendencies and aims of instruction in the social studies.

Ed. 134. Materials and Procedure for the High School Core Curriculum (2).

This course is designed to bring practical suggestions to teachers who are in charge of core classes in junior and senior high schools. Materials and teaching procedures for specific units of work are stressed. Fee, \$1.00.
(Schneider.)

*Credit is accepted for Ed. 130 or Ed. 131, but not for both courses.

Ed. 137. Science in the Junior High School (2).

Summer school. A study of the place, function and content of science in junior high school programs. Applications to core curriculum organization. Laboratory fee, \$2.00.

Ed. 140. Curriculum, Instruction, and Observation (3).

First and second semesters. Offered in separate sections for the various subject matter areas, namely, English, social studies, foreign language, science, mathematics, art education, business education, industrial education, music education, and physical education. Registration cards must include the subject-matter area as well as the name and number of the course. Graduate credit is allowed only by special arrangement. The objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks, and other instructional materials, measurement, and other topics pertinent to the particular subject matter area are treated. Twenty periods of observation. (Staff.)

Ed. 141. High School Course of Study-English (2).

Methods and techniques used in teaching the language arts in secondary schools.

(Bryan.)

Ed. 142. High School Course of Study-Literature (2).

Representative selections of the literature studied in secondary schools and methods of presentation.

(Bryan.)

Ed. 145. Principles of High School Teaching (2-3).

First and second semesters. This course is concerned with the principles and methods of teaching in junior and senior high schools.

(Brechtbill.)

Ed. 147. Audio-Visual Education (2).

First semester and summer session. Sensory impressions in their relation to learning; projection apparatus, its cost and operation; slides, film-strips, and films; physical principles underlying projection; auditory aids to instruction; field trips; pictures, models, and graphic materials; integration of sensory aids with organized instruction. Recommended for all education students. Laboratory fee, \$1.00.

(Maley.)

Ed. 148. Student Teaching in Secondary Schools (2-8).

First and second semesters. Prerequisite, Ed. 140, grade-point average of 2.275, and approval of faculty. Undergraduate credit only. Laboratory fee, \$30.00. Application forms for this course must be submitted to the Director of Student Teaching not less than ninety days before registration. Students who register for this course serve as apprentice teachers in the schools to which they are assigned. For 8 credits, full time for one-half of one semester is devoted to this work. For experienced teachers and some graduate students, the time and credit may be reduced.

(Staff.)

Ed. 149. Student Teaching in Elementary Schools (8-16).

A grade-point average of 2.275 and approval of the faculty required. Undergraduate credit only. Application forms for this course must be filed at least ninety days before registration. No other courses may be taken during the semester of student teaching. Laboratory fee, \$30.00. Students who register for this course serve as apprentice teachers in the schools to which they are assigned. For 16 credits, full time for one semester is devoted to this work. For experienced teachers, the time and credit may be reduced.

(Blough and O'Neill.)

Ed. 150. Educational Measurement (2).

First and second semesters; Summer. Constructing and interpreting measures of achievement.

Ed. 152. The Adolescent: Characteristics and Problems (2).

Intellectual, emotional, social, and vocational problems which arise in the transitional period between childhood and adulthood, the secondary school period.

Ed. 153. The Teaching of Reading (2).

Concerned with the fundamentals of developmental reading instruction, including reading readiness, use of experience records, procedures in using basal readers, the improvement of comprehension, teaching reading in all areas of the curriculum, uses of children's literature, the program in word analysis, and procedures for determining individual needs. (Schindler.)

Ed. 154. Remedial Reading Instruction (2).

For supervisors and teachers who wish to help retarded readers. Concerned with causes of reading difficulties, the identification and diagnosis of retarded pupils, instructional materials, and teaching procedures. Prerequisite, Ed. 153 or the equivalent. (Schindler.)

Ed. 155. Laboratory Practices in Reading for Elementary and Secondary Schools (2-4).

A laboratory course in which each student has one or more pupils for analysis and instruction. At least one class meeting per week to diagnose individual cases and to plan instruction. Prerequisite, Ed. 153 or Ed. 154. (Schindler.)

Ed. 160. Educational Sociology (2).

Deals with data of the social sciences which are germane to the work of teachers. Implications of democratic ideology for educational endeavor, educational tasks imposed by changes in population and technological trends, the welfare status of pupils, the socio-economic attitudes of individuals who control the schools, and other elements of community background.

Ed. 161. Principles of Guidance (2).

First and second semesters; Summer. Overview of principles and practices of guidance-oriented education. (Byrne.)

Ed. 162. Mental Hygiene in the Classroom (2).

The practical application of the principles of mental hygiene to classroom problems. (Denecke.)

Ed. 163, 164, and 165. Community Study Laboratory I, II and III (2, 2, 2).

Involves experience from the educational standpoint with the agencies, institutions, cultural patterns, living conditions, and social processes which play significant roles in shaping the behavior of children and adults and which must be understood by individuals working toward school and community improvement. Each participant becomes a member of a group in a given area of study and concentrates on problems which have

direct application in his school situation. Readings are integrated with techniques of study. (Schindler.)

Ed. 170. Introduction to Special Education (2).

Designed to give an understanding of the needs of all types of exceptional children, stressing preventive and remedial measures.

Ed. 171. Education of Retarded and Slow-Learning Children (2).

A study of retarded and slow-learning children, including discovery, analysis of causes, testing techniques, case studies, and remedial educational measures. (Denecke.)

Ed. 188. Special Problems in Education (1-3).

Prerequisite, consent of instructor. Available only to mature students who have definite plans for individual study of approved problems. (Staff.)

NOTE: Course cards must have the title of the problem and the name of the faculty member who has approved it.

Ed. 189. Workshops, Clinics, Institutes, and Field-Laboratory Projects (1-6).

The following types of educational enterprises may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors; work in schools or for schools by way of teaching apprenticeships, educational guidance services, school surveys, and curriculum development programs. The maximum number of credits that may be earned under this course symbol toward any degree is six semester hours; the symbol may be used two or more times until six semester hours have been reached.

Ed. 191. Principles of Adult Education (2).

A study of aspects of adult education in the United States, selected in terms of interests of students. (Wiggin.)

For Graduates

Ed. 202. The Junior College (2).

The philosophy and development of the junior college in the United States with emphasis on curriculum and administrative controls.

Ed. 203. Problems in Higher Education (2).

A study of present problems in higher education. (Wiggin.)

Ed. 205. Seminar in Comparative Education (2).

Ed. 207. Seminar in History and Philosophy of Education (2).

(Wiggin.)

Ed. 210. The Organization and Administration of Public Education (2).

First semester. The basic course in school administration. Deals with the organization and administration of school systems—at the local, state, and federal levels; and with the administrative relationships involved. (Newell.)

Ed. 211. The Organization, Administration, and Supervision of Secondary Schools (2).

Second semester. The work of the secondary school principal. Includes topics such as personnel problems, supervision, school-community relationships, student activities, schedule making, and internal financial accounting. (Schneider.)

Ed. 212. School Finance and Business Administration (2).

An introduction to principles and practices in the administration of the public school finance activity. Sources of tax revenue, the budget, and the function of finance in the educational program are considered. (Van Zwoll.)

Ed. 214. School Buildings and Equipment (2).

An orientation course in which the planning of school buildings is developed as educational designing with reference to problems of site, building facilities, and equipment. (Van Zwoll.)

Ed. 215. Public Education in Maryland (2).

A study of Maryland Public School system with special reference to school law.

Ed. 216. High School Supervision (2).

Prerequisite, teaching experience. Deals with recent trends in supervision; the nature and function of supervision; planning supervisory programs; evaluation and rating; participation of teachers and other groups in policy development; school workshops; and other means for the improvement of instruction. (Schneider.)

Ed. 217. Administration and Supervision in Elementary Schools (2).

Problems in organizing and administering elementary schools and improving instruction. (Denecke.)

Ed. 218. School Surveys (2-6).

Prerequisite, consent of instructor. Includes study of school surveys with emphasis on problems of school organization and administration, finance and school plant planning. Field work in school surveys is required. (Newell.)

Ed. 219. Seminar in School Administration (2). (Newell, Van Zwoll.)**Ed. 220. Pupil Transportation (2).**

Includes consideration of the organization and administration of state, county, and district pupil transportation service with emphasis on safety and economy. The planning of bus routes; the selection and training of bus drivers, and maintenance mechanics; the specification of school buses; and procurement procedures are included.

Ed. 222. Seminar in Supervision (2).

Prerequisite, Ed. 216. Prerequisite may be waived upon approval of the instructor.

Ed. 223. Practicum in Personnel Relationships (2-6).

Prerequisite, consent of instructor. Enrollment limited. Designed to help teachers, school administrators, and other school staff members to learn to function more effectively in developing educational policy in group situations. Each student in the course is required to be working concurrently in the field with a group of school staff members or citizens on actual school problems. (Newell.)

Ed. 224. Internship in School Administration (12-16).

Internships in administration or supervision may be provided for a few students who have had teaching experience. The intern will be assigned to assist a principal, supervisor, or some other staff member in a school or school system. In addition to this experience, a program of studies is planned for each intern by the appropriate member of the school staff and the sponsor from the university. The sponsor will maintain a close working relationship with the intern and other persons involved. (Newell.)

Ed. 225. School Public Relations (2).

A study of the interrelationships between the community and the school. Public opinion, propaganda, and the ways in which various specified agents and agencies within the school have a part in the school public relations program are explored. (Van Zwoll.)

Ed. 226. Child Accounting (2).

An inquiry into the record keeping activities of the school system, including an examination of the marking system. (Van Zwoll.)

Ed. 227. Public School Personnel Administration (2).

A comparison of practices with principles governing the satisfaction of school personnel needs, including a study of tenure, salary schedules, supervision, rewards, and other benefits. (Van Zwoll.)

Ed. 229. Seminar in Elementary Education (2).

Primarily for individuals who wish to write seminar papers. Enrollment should be preceded by at least 12 hours of graduate work in Education.

Ed. 230. Elementary School Supervision (2).

Concerned with the nature and function of supervision, various supervisory techniques and procedures, human relationship factors and personal qualities for effective supervision. (Denecke.)

Ed. 232. Student Activities in the High School (2).

A consideration of the problems connected with student activities of the high school: (1) philosophical bases, (2) aims, (3) organization, and (4) supervision of student activities such as student council, school publications, musical organizations, dramatics, assemblies, and clubs.

Ed. 234. The School Curriculum (2).

A foundations course embracing the curriculum as a whole from early childhood through adolescence, including a review of historical developments, an analysis of conditions affecting curriculum change, an examination of issues in curriculum making, and a consideration of current trends in curriculum design. (Hovet.)

Ed. 235. Curriculum Development in Elementary Schools (2).

Concerned with problems encountered in curriculum evaluation and revision: sociological and philosophical factors, principles for the selection and organization of content and learning activities, patterns of curriculum organization, and the utilization of personnel for curriculum development. (O'Neil.)

Ed. 236. Curriculum Development in the Secondary School (2).

Curriculum planning; philosophical bases, objectives, learning experiences, organization of appropriate content, and means of evaluation. (Hovet.)

Ed. 237. Curriculum Theory and Research (2).

The school curriculum considered within the totality of factors affecting pupil behavior patterns, an analysis of research contributing to the development of curriculum theory, a study of curriculum theory as basic to improved curriculum design, the function of theory in guiding research, and the construction of theory through the utilization of concepts from the behavioral research disciplines. (Hovet.)

Ed. 239. Seminar in Secondary Education (2).**Ed. 242. Coordination in Work-Experience Programs (2).**

Surveys and evaluates the qualifications and duties of a teacher-coordinator in a work-experience program. Deals particularly with evolving patterns in city and county schools in Maryland, and is designed to help teacher-coordinators, guidance counselors, and others in the supervisory and administrative personnel concerned with functioning relationships of part-time cooperative education in a comprehensive educational program. (Brown.)

Ed. 243. Problems of Teaching Arithmetic in Elementary Schools (2).

Implications of current theory and results of research for the teaching of arithmetic in elementary schools. (Schindler.)

Ed. 244. Problems of Teaching Language Arts in Elementary Schools (2).

Implications of current theory and results of research for the language arts in the elementary schools.

Ed. 245. Applications of Theory and Research to High School Teaching (2).

Implications of experimental practices, the proposals of eminent writers, and the results of research for the improvement of teaching on the secondary level. (Hovet.)

Ed. 246. Problems of Teaching Social Studies in Elementary Schools (2).

Application to the social studies program of selected theory and research in the social sciences, emphasizing patterns of behavior, environmental influences, and critical thinking. (O'Neill.)

Ed. 247. Seminar in Science Education (2).

An opportunity to pursue special problems in curriculum making, course of study

development, or other science teaching problems. Class members may work on problems related directly to their own school situations. (Blough.)

Ed. 248. Seminar in Industrial Arts and Vocational Education (2).

(See Ind. Ed. 248.)

(Brown, Hornbake.)

Ed. 250. Analysis of the Individual (2).

Knowing students through use of numerous techniques. Ed. 161 desirable as prerequisite. (Byrne.)

Ed. 253. Guidance Information (2).

Finding, filing, and using information needed by students for making choices, plans, and adaptations in school, occupations, and in inter-personal relations. Ed. 161 desirable as prerequisite. (Byrne.)

Ed. 254. Organization and Administration of Guidance Programs (2).

Instilling the guidance point of view and implementing guidance practices. All guidance courses except Seminar are prerequisites.

Ed. 260. Principles of School Counseling (2).

Prerequisites, Ed. 161, Ed. 250, Ed. 253. Prerequisites may be waived by instructor. Exploration of counseling theories and the practices which stem from them.

(Byrne.)

Ed. 261. Case Studies in School Counseling (2).

Prerequisite, Ed. 260. Application of counseling theory to the study of counseling cases which students will conduct. Designed to develop counseling proficiency. Prerequisite, Ed. 260. (Byrne.)

Ed. 263, 264. Aptitudes and Aptitude Testing (2, 2).

(Offered in Baltimore.)

Ed. 267. Curriculum Construction Through Community Analysis (2).

Prerequisites, Ed. 163, 164, 165. Selected research problems in the field of community study with emphasis on Baltimore area. (Schindler.)

Ed. 268. Seminar in Educational Sociology (2).

Ed. 269. Seminar in Guidance (2).

Registration only by approval of instructor. Final guidance course. Students study research and conduct one. (Byrne.)

Ed. 278. Seminar in Special Education (2).

(Denecke.)

Ed. 279. Seminar in Adult Education (2).

(Wiggin.)

Ed. 280. Research Methods and Materials in Education (2).

A study of research in education, the sources of information and techniques available, and approved form and style in the preparation of research reports and theses.

Ed. 281. Source Materials in Education (2).

Based on the text and work-book by Carter Alexander, "How to Locate Educational Information and Data." Involves attendance at class for one hour with two additional hours of work in the library. Especially valuable for students interested in research.

Ed. 288. Special Problems in Education (1-6).

First and second semesters and summer session. Master of education or doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for credit under this number. (Staff.)

NOTE: Course card must have the title of the problem and the name of the faculty member under whom the work will be done.

Ed. 289. Research—Thesis (1-6).

First and second semesters and summer session. Students who desire credit for a master's thesis, a doctoral dissertation, or a doctoral project should use this number. (Staff.)

BUSINESS EDUCATION**For Advanced Undergraduates and Graduates****B. Ed. 100. Techniques of Teaching Office Skills (2).**

First semester. An examination and evaluation of the aims, methods, and course contents of each of the office skill subjects offered in the high school curriculum. (Patrick.)

B. Ed. 101. Methods and Materials in Teaching Office Skills (2).

Problems in development of occupational competency, achievement tests, standards of achievement, instructional materials, transcription, and the integration of office skills. (Patrick.)

B. Ed. 102. Methods and Materials in Teaching Bookkeeping and Related Subjects (2).

Important problems and procedures in the mastery of bookkeeping and related office knowledges and skills including a consideration of materials and teaching procedures. (Patrick.)

B. Ed. 103. Basic Business Subjects in the Junior High School (2).

Deals with the exploratory aspects of basic business subjects and fundamentals of consumer business education, available instructional materials, and teaching procedures.

B. Ed. 104. Basic Business Education in the Secondary Schools (2).

Consideration will be given to the vocational and consumer objectives; subject matter content; methods of organizing material; types of classroom activities; and teaching procedures in basic business subjects in the secondary schools. (Patrick.)

B. Ed. 200. Administration and Supervision of Business Education (2).

Major emphasis on departmental organization, curriculum, equipment, budget making, guidance, placement and follow-up, visual aids and the in-service training of teachers. For administrators, supervisors, and teachers of business subjects.

B. Ed. 255. Principles and Problems of Business Education (2).

Principles and practices in business education; growth and present status; vocational business education; general business education; relation to consumer education and to education in general. (Patrick.)

B. Ed. 256. Curriculum Development in Business Education (2-6).

This course is especially designed for graduate students interested in devoting the summer session to a concentrated study of curriculum planning in business education. Emphasis will be placed on the philosophy and objectives of the business education program, and on curriculum research and organization of appropriate course content.

CHILDHOOD EDUCATION**C. Ed. 2. Orientation, Observation, and Record Taking (2).**

First and second semesters. Orientation to nursery school and kindergarten; methods of observing and recording behavior of children at different age levels. (McNaughton.)

For Advanced Undergraduates and Graduates**C. Ed. 100. Child Development I—Infancy (3).**

First semester. Understanding the pattern of growth. Factors influencing development; relation of care during the first eighteen months to personality development; study of a child fourteen months of age or under. (Broome.)

C. Ed. 101. Child Development II—Early Childhood (3).

Second semester. Developmental growth of the child from eighteen months to five years; experiences which help the child in his development; observation in the nursery school; study of one child. (Broome.)

C. Ed. 110. Child Development III (3).

First and second semesters. Developmental growth of the child from birth to five years; observation in the nursery school. For students in other colleges of the University. Laboratory fee, \$1.00. (Broome.)

C. Ed. 113. Education of the Young Child I (2).

A study of the nature and needs of the child from two to six years of age, with emphasis upon learning tendencies; the child's relation to the materials, experiences, and the people of his world at home and at school. For teachers in Cooperatives.

C. Ed. 114. Education of the Young Child II—The Social and Emotional Needs of the Young Child (2).

An attempt to understand what lies beneath outward behavior rather than on conformity as such; acceptance of the child's feelings; helping the child to live richly and fully on his own level; seeing the child as a whole; working with the parents and the home to bring about the most favorable adjustment of the child. For teachers in Cooperatives.

C. Ed. 115. Children's Activities and Activities Materials (3).

First and second semesters. Prerequisites, C. Ed. 100, 101, or 110. Laboratory fee, \$5.00. Storytelling; selection of books for pre-school children; the use, preparation, and presentation of such raw materials as clay, paints (casein and finger), blocks, wood, and scrap materials for nursery school and kindergarten.

C. Ed. 116. Creative Music for Young Children (2-3).

Prerequisite, Mus. 16 or equivalent. First and second semesters. Creative experience in songs and rhythms; correlation of music and everyday teaching with the abilities and development of each level; study of songs and materials; observation and teaching experience with each age level. (Brown.)

C. Ed. 119. Curriculum, Instruction, and Observation—Cooperative Nursery School (2-3).

C. Ed. 140. Curriculum, Instruction, and Observation—Early Childhood Education (Nursery School and Kindergarten) (3).

Prerequisites, C. Ed. 100, 101, or 110. Philosophy of early childhood education; observation of the developmental needs at various age levels, with emphasis upon the activities, materials, and methods by which educational objectives are attained. (Stant and Glass.)

C. Ed. 145. Guidance in Behavior Problems (3).

First and second semesters. Development of an appreciation and understanding of young children from different home and community backgrounds; study of individual and group problems. (Glass.)

C. Ed. 149. Teaching Nursery School (4-8).

First and second semesters. Laboratory fee, \$30.00. Admission to student teaching depends upon physical and emotional fitness, and upon approval of the staff of the department. An academic average of 2.275 is required. It is recommended that each student have some summer experience with young children. Teaching experience in the University Nursery School and in those of nearby communities. Approximately thirty clock-hours of school experience are required for each semester-hour of credit. (Glass.)

C. Ed. 159. Teaching Kindergarten (4-8).

First and second semesters. Laboratory fee, \$30.00. Admission to student teaching (in Nursery School and Kindergarten) depends upon approval of the teaching staff of the department. An academic average of 2.275 is required. It is recommended that each student have some summer experience with young children. Teaching experience in the University kindergarten and in those of nearby communities (Stant.)

C. Ed. 160. Methods and Materials in Parent Education (2-3).

A survey of child development, child guidance, and related fields; a review of current materials, books, periodicals, leaflets, films, skits; study of individual parent conferences, guided observation, discussion leading, role playing, preparing materials and programs for parent groups and television skits with laboratory practice through the group itself. (Taylor.)

C. Ed. 165. Leadership Training (2).

Designed for leaders in Parent-Teacher groups and in other organizations. Setting up the duties of a leader, participants, observer and recorder; developing methods for discussion groups.

HOME ECONOMICS EDUCATION**For Advanced Undergraduates and Graduates****H. E. Ed. 102. Problems in Teaching Home Economics (3).**

First and second semesters. Required of seniors in Home Economics Education. Prerequisite, H. E. Ed. 140. A study of the managerial aspects of teaching and administering a home-making program; the physical environment, organization, and sequence of instructional units, resource materials, evaluation, home projects. (Spencer.)

H. E. Ed. 120. Evaluation of Home Economics (2).

The meaning and function of evaluation in education; the development of a plan for evaluating a homemaking program with emphasis upon types of evaluation devices, their construction, and use. (Spencer.)

H. E. Ed. 140. Curriculum, Instruction, and Observation (3).

Second semester. Required of juniors in Home Economics Education. The place and function of home economics education in the secondary school curriculum. Philosophy of education for home and family living; characteristics of adolescence, construction of source units, lesson plans, and evaluation devices; directed observation in junior and senior high school home economics departments. (Spencer.)

H. E. Ed. 148. Teaching Secondary Vocational Home Economics (8).

First and second semesters. Prerequisite, H. E. Ed. 140 and 101 or 102 parallel. See Ed. 148. Laboratory fee, \$30.00. Observation and supervised teaching in approved secondary school home economics departments in Maryland and the District of Columbia. (Spencer.)

H. E. Ed. 200. Seminar in Home Economics Education (2).

First semester. (Spencer.)

H. E. Ed. 202. Trends in the Teaching and Supervision of Home Economics (2-4).

Study of home economics programs and practices in light of current educational trends. Interpretation and analysis of democratic teaching procedures, outcomes of instruction, and supervisory practices. (Spencer.)

HUMAN DEVELOPMENT EDUCATION

The staff of the Institute for Child Study offers a series of courses on human development and approaches to the direct study of children for members of the educational profession. Certain prerequisites are set up within the course sequences, but these prerequisites are modified by the student's previous experience in direct study of children; this is done in order to provide an interrelated series of experiences leading toward synthesis and the ability to apply the principles of human development and behavior.

Undergraduate courses are designed both for prospective teachers (H. D. Ed. 100-101) and in-service teachers (H. D. Ed. 102, 103, 104; H. D. Ed. 112-13, 114-15, 116-17). The graduate offering contains two series. H. D. Ed. 200, 201, 202, 203 provide a basic core of four seminars for students majoring in the field, and also provide electives (beginning with H. D. Ed. 200—Introduction) for any graduate students interested in an overview of the field. The other seminars (H. D. Ed. 204 and above) are designed for emphasis in depth on the various areas of major processes and forces that shape the development and behavior of human beings, and are intended primarily for advanced graduate students. Along with most of the graduate seminars, H. D. Ed. 250 provides for concurrent application of scientific knowledge to the direct study of children as individuals and in groups.

H. D. Ed. 100, 101. Principles of Human Development I and II (3, 3).

These courses give a general overview of the scientific principles that describe human development and behavior and relate these principles to the task of the school. A year-long study of an individual child is an integral part of the course and will require one half-day per week for observing children in nearby schools. *This course is designed to meet the usual certification requirements in Educational Psychology.*

H. D. Ed. 102, 103, 104. Child Development Laboratory I, II and III (2, 2, 2).

These courses involve the direct study of children throughout the school year. Each participant gathers a wide body of information about an individual, presents the accumulating data from time to time to the study group for criticism and group analysis, and writes an interpretation of the dynamics underlying the child's learning, behavior and development. Provides opportunity for teachers in-service to earn credit for participation in their own local child study group.

H. D. Ed. 112, 114, 116. Scientific Concepts in Human Development I, II, III (3, 3, 3).

Summer.

H. D. Ed. 113, 115, 117. Laboratory in Behavior Analysis I, II, III (3, 3, 3).

Summer.

H. D. Ed. 200. Introduction to Human Development and Child Study (3).

Offers a general overview of the scientific principles which describe human development and behavior and makes use of these principles in the study of individual children.

Each student will observe and record the behavior of an individual child throughout the semester and must have one half-day a week free for this purpose. It is basic to further work in child study and serves as a prerequisite for advanced courses where the student has not had field work or at least six weeks of workshop experience in child study. When offered during the summer it will be H. D. Ed. 200 and intensive laboratory work with case records may be substituted for the study of an individual child.

H. D. Ed. 201. Biological Bases of Behavior (3).

Emphasizes that understanding human life, growth and behavior depends on understanding the ways in which the body is able to capture, control and expend energy. Application throughout is made to human body processes and implications for understanding and working with people. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 202. Social Bases of Behavior (3).

Analyzes the socially inherited and transmitted patterns of pressures, expectations and limitations learned by an individual as he grows up. These are considered in relation to the patterns of feeling and behaving which emerge as the result of growing up in one's social group. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 203. Integrative Bases of Behavior (3).

Analyzes the organized and integrated patterns of feeling, thinking and behaving which emerge from the interaction of basic biological drives and potentials with one's unique experience growing up in a social group. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 204, 205. Physical Processes in Human Development (3, 3).

Describes in some detail the major organic processes of: conception, biological inheritance; differentiation and growth of the body; capture, transportation and use of energy; perception of the environment; coordination and integration of function; adaptation to unusual demands and to frustration; normal individual variation in each of the above processes. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 206, 207. Socialization Processes in Human Development I, II (3, 3).

Analyzes the processes by which human beings internalize the culture of the society in which they live. The major sub-cultures in the United States, their training procedures, and their characteristic human expressions in folk-knowledge, habits, attitudes, values, life-goals, and adjustment patterns are analyzed. Other cultures are examined to highlight the American way of life and to reveal its strengths and weaknesses. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 208, 209. Self Processes in Human Development I and II (3, 3).

Analyzes the effects of the various physical and growth processes, affectional relationships, socialization processes, and peer group roles and status on the integration, development, adjustment, and realization of the individual self. This analysis includes consideration of the nature of intelligence and of the learning processes; the development of skills, concepts, generalizations, symbolizations, reasoning and imagination, attitudes, values, goals and purposes; and the conditions, relationships and experiences that are essential to full human development. The more common adjustment problems

experienced in our society at various maturity levels, and the adjustment mechanisms used to meet them are studied. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 210. Affectional Relationships and Processes in Human Development (3).

Describes the normal development, expression and influence of love in infancy, childhood, adolescence and adulthood. It deals with the influence of parent-child relationships involving normal acceptance, neglect, rejection, inconsistency, and over-protection upon health, learning, emotional behavior and personality adjustment and development. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 211. Peer-culture and Group Processes in Human Development (3).

Analyzes the processes of group formation, role-taking and status-winning. It describes the emergence of the "peer-culture" during childhood and the evolution of the child society at different maturity levels to adulthood. It analyzes the developmental tasks and adjustment problems associated with winning, belonging and playing roles in the peer group. H. D. Ed. 250 a or b or c must be taken concurrently with this course.

H. D. Ed. 212, 214, 216. Advanced Scientific Concepts in Human Development I, II, III (3, 3, 3).

Summer.

H. D. Ed. 213, 215, 217. Advanced Laboratory in Behavior Analysis I, II, III (3, 3, 3).

Summer.

H. D. Ed. 218. Workshop in Human Development (6).

Prerequisites, H. D. Ed. 212, 213, 214, 215, 216, 217. Summer.

H. D. Ed. 220. Developmental Tasks (3).

Describes the series of developmental tasks faced by children. These tasks, made necessary by the normal processes of growth and development, are learnings that the child needs and desires to accomplish because of emerging capacities for action and relationship, because of the demands and expectancies of his family and of society, and because of the progressive clarification and the directive powers of his own interests, attitudes, values and aspirations. Emphasis will be placed on the use of developmental tasks concepts in educational planning and practice.

H. D. Ed. 230, 231. Field Program in Child Study I and II (2-6).

Offers apprenticeship training preparing properly qualified persons to become staff members in human development workshops, consultants to child study field programs and coordinators of municipal or regional child study programs for teachers or parents. Extensive field experience is provided. In general this training is open only to persons who have passed their preliminary examinations for the doctorate with a major in human development or psychology. Prerequisite, consent of instructor.

H. D. Ed. 250a, 250b, 250c. Direct Study of Children (1, 1, 1).

Provides the opportunity to observe and record the behavior of an individual child in a nearby school. These records will be used in conjunction with the advanced courses in Human Development and this course will be taken concurrently with such courses. Teachers active in their jobs while taking advanced courses in Human Development may use records from their own classrooms for this course. May not be taken concurrently with H. D. Ed. 102, 103, or 104.

H. D. Ed. 260. Synthesis of Human Development Concepts (3).

A seminar wherein advanced students work toward a personal synthesis of their own concepts in human growth and development. Emphasis is placed on seeing the dynamic interrelations between all processes in the behavior and development of an individual. Prerequisites, H. D. Ed. 204, 206 and 208.

H. D. Ed. 270. Seminars in Special Topics in Human Development (2-6).

An opportunity for advanced students to focus in depth on topics of special interest growing out of their basic courses in human development. Prerequisite, consent of the instructor.

INDUSTRIAL EDUCATION**Ind. Ed. 1. Mechanical Drawing (2).**

Two laboratory periods a week. This course constitutes an introduction to orthographic multi-view and isometric projection. Emphasis is placed upon the visualization of an object when it is represented by a multi-view drawing and upon the making of multi-view drawings. The course carries through auxiliary views, sectional views, dimensioning, conventional representation and single stroke letters. Laboratory fee, \$5.00.

Ind. Ed. 2. Elementary Woodworking (2).

Two laboratory periods a week. This is a woodworking course which involves primarily the use of hand tools. The course is developed so that the student uses practically every common woodworking hand tool in one or more situations. There is also included elementary wood finishing, the specifying and storing of lumber, and the care and conditioning of tools used. Laboratory fee, \$5.00.

Ind. Ed. 9. Industrial Arts in the Elementary School I (2).

A course for pre-service and in-service elementary school teachers covering construction activities in a variety of media suitable for classroom use. The work is organized on the unit basis so that the construction aspect is supplemented by reading and other investigative procedures. Laboratory fee, \$5.00.

Ind. Ed. 10. Industrial Arts in the Elementary School II (2).

Prerequisite, Ind. Ed. 9. This is a continuation of Ind. Ed. 9. It provides the teacher with opportunities to develop further competence in construction activities. Some of the basic phenomena of industry are studied, particularly those which apply to the manufacture of common products, housing, transportation and communication. Laboratory fee, \$5.00.

Ind. Ed. 12. Shop Calculations (3).

Shop Calculations is designed to develop an understanding and working knowledge

of the mathematical concepts related to the various aspects of Industrial Education. The course includes phases of algebra, geometry, trigonometry, and general mathematics as applied to shop and drawing activities.

Ind. Ed. 21. Mechanical Drawing (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 1. A course dealing with working drawings, machine design, pattern layouts, tracing and reproduction. Detail drawings followed by assemblies are presented. Laboratory fee, \$5.00.

Ind. Ed. 22. Machine Woodworking I (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 2. Machine Woodworking I offers initial instruction in the proper operation of the jointer, band saw, variety saw, jig saw, mortiser, shaper, and lathe. The types of jobs which may be performed on each machine and their safe operation are of primary concern. Laboratory fee, \$5.00.

Ind. Ed. 23. Arc and Gas Welding (1).

One laboratory period a week. A course designed to develop a functional knowledge of the principles and use of electric and acetylene welding. Practical work is carried on in the construction of various projects using welded joints. Instruction is given in the use and care of equipment, types of welded joints, methods of welding, importance of welding processes in industry, safety considerations, etc. Laboratory fee, \$5.00.

Ind. Ed. 24. Sheet Metal Work (2).

Two laboratory periods a week. Articles are made from metal in its sheet form and involve the operations of cutting, shaping, soldering, riveting, wiring, folding, seaming, beading, burring, etc. The student is required to develop his own patterns inclusive of parallel line development, radial line development, and triangulation. Laboratory fee, \$5.00.

Ind. Ed. 26. General Metal Work (3).

Three, two-hour laboratory periods a week. This course provides experiences in constructing items from aluminum, brass, copper, pewter and steel. The processes included are designing, laying out, heat treating, forming, surface decorating, fastening and assembling. The course also includes a study of the aluminum, copper and steel industries in terms of their basic manufacturing processes. Laboratory fee, \$7.50.

Ind. Ed. 28. Electricity I (2).

Two laboratory periods a week. An introductory course to electricity in general. It deals with the electrical circuit, elementary wiring problems, the measurement of electrical energy, and a brief treatment of radio. Laboratory fee, \$5.00.

Ind. Ed. 31. Mechanical Drawing (2).

Two laboratory periods a week. Prerequisites, Ind. Ed. 1 and 21. A course dealing with the topics enumerated in Ind. Ed. 21 but on a more advanced basis. The reading of prints representative of a variety of industries is a part of this course. Laboratory fee, \$5.00.

Ind. Ed. 33—Automotives I (3).

Three, two-hour laboratory periods a week. Automotives I is a study of the fundamentals of internal combustion engines as applied to transportation. A study of basic

materials and methods used in the automotive industry is included. Shop practices are built around the maintenance and minor repair of automobiles and smaller motor driven apparatus. Laboratory fee, \$7.50.

Ind. Ed. 34. Graphic Arts I (3).

Three, two-hour laboratory periods a week. An introductory course involving experiences in letterpress and offset printing practices. The course includes typographical design, hand composition, proof reading, stock preparation, offset plate making, imposition, lock-up, stock preparation, presswork, linoleum block cutting, paper marbling, and bookbinding. Laboratory fee, \$7.50.

Ind. Ed. 41. Architectural Drawing (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 1, or equivalent. Practical experience is provided in the design and planning of houses and other buildings. Working drawings, specifications and blue-prints are featured. Laboratory fee, \$5.00.

Ind. Ed. 42. Machine Woodworking II (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 22, or equivalent. Advanced production methods with emphasis on cabinetmaking and design. Laboratory fee, \$5.00.

Ind. Ed. 43. Automotives II (3).

Three, two-hour laboratory periods a week. Prerequisite, Ind. Ed. 33. This is an advanced course in automobile construction and maintenance covering the engine, fuel system, ignition system, chassis and power train. Shop practices are built around the major repair and adjustment of the above groups. Laboratory fee, \$7.50.

Ind. Ed. 44. Graphic Arts II (3).

Three, two-hour laboratory periods a week. Prerequisite, Ind. Ed. 34. An advanced course designed to provide further experiences in letterpress and offset printing and to introduce other reproduction processes. Silk screen printing, dry point etching, mimeograph reproduction, and rubber stamp making are the new processes introduced in this course. Laboratory fee, \$7.50.

Ind. Ed. 48. Electricity II (2).

Two laboratory periods a week. Principles involved in A-C and D-C electrical equipment, including heating measurements, motors and controls, electro-chemistry, the electric arc, inductance and reactance, condensers, radio, and electronics. Laboratory fee, \$5.00.

Ind. Ed. 50. Methods of Teaching (2).

(Offered at CSCS Centers.) For vocational and occupational teachers of shop work and related subjects. The identification and analysis of factors essential to helping others learn; types of teaching situations and techniques; measuring results and grading student progress in shop and related technical subjects.

Ind. Ed. 60. Observation and Demonstration Teaching (2).

(Offered in Baltimore.) Prerequisite, Educational Psychology and/or Methods of Teaching Vocational and Occupational Subjects. Primarily for vocational and occupational teachers. Sixteen hours of directed observation and demonstration teaching.

Reports, conferences, and criticisms constitute the remainder of scheduled activities in this course.

Ind. Ed. 66. Art Metal Work (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 26, or equivalent. Advanced shop practicum. It includes methods of bowl raising and bowl ornamenting. Laboratory fee, \$5.00.

Ind. Ed. 69. Machine Shop Practice I (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 1, or equivalent. Bench work, turning, planing, milling, and drilling. Related technical information. Laboratory fee, \$5.00.

Ind. Ed. 89. Machine Shop Practice II (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 69, or equivalent. Advanced shop practicum in thread cutting, grinding, boring, reaming, and gear cutting. Work-production methods are employed. Laboratory fee, \$5.00.

Ind. Ed. 94. Shop Maintenance (2).

Prerequisite, 8 semester hours of shop credit, or equivalent. Skill developing practice in the maintenance of school-shop facilities.

Ind. Ed. 101. Operational Drawing (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 1, or equivalent. A comprehensive course designed to give students practice in the modern drafting methods of industry. Laboratory fee, \$5.00.

Ind. Ed. 102. Advanced Woodfinishing and Upholstery (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 22, or equivalent. This course offers instruction in wood finishing techniques applicable to furniture restoration and in the processes of upholstering household furniture. Laboratory fee, \$5.00.

Ind. Ed. 104. Advanced Practices in Sheet Metal Work (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 24, or equivalent. Study of the more complicated processes involved in commercial items. Calculations and pattern making are emphasized. Laboratory fee, \$5.00.

Ind. Ed. 105. General Shop (2).

Designed to meet needs in organizing and administering a secondary school general shop. Students are rotated through skill and knowledge developing activities in a variety of shop areas. Laboratory fee, \$5.00.

Ind. Ed. 106. Art Metal Work (2).

Two laboratory periods a week. Basic operations in the art of making jewelry including ring making and stone setting. Laboratory fee, \$5.00.

Ind. Ed. 108. Electricity III (2).

Two laboratory periods a week. Prerequisite, Ind. Ed. 28, or equivalent. Experimental development of apparatus and equipment for teaching the principles of electricity. Laboratory fee, \$5.00.

Ind. Ed. 109. Experimental Electricity and Electronics—A, B, C, D (2, 2, 2, 2).

(Offered in Baltimore.)

Ind. Ed. 110. Foundry (1).

One laboratory period a week. Bench and floor molding and elementary core making. Theory and principles covering foundry materials, tools and appliances. Laboratory fee, \$5.00.

Ind. Ed. 111. Laboratory Practicum in Industrial Arts Education (3).

Three, two-hour laboratory periods a week. Prerequisite, eighteen semester hours of shopwork and drawing. A course devoted to the development of instructional materials and the refinement of instructional methods pertinent to the teaching of industrial arts at the secondary school level. Laboratory fee, \$7.50.

Ind. Ed. 124 a, b. Organized and Supervised Work Experience.

(3 credits for each internship period, total: 6 credits). This is a work experience sequence planned for students enrolled in the curriculum, "Education for Industry." The purpose is to provide the students with opportunities for first-hand experiences with business and industry. The student is responsible for obtaining his own employment with the coordinator advising him as regards the job opportunities which have optimum learning value. The nature of the work experience desired is outlined at the outset of employment and the evaluations made by the student and the coordinator are based upon the planned experiences. The time basis for each internship period is 6 forty-hour weeks or 240 work hours. Any one period of internship must be served through continuous employment in a single establishment. Two internship periods are required. The two internships may be served with the same business or industry. The completion for credit of any period of internship requires the employer's recommendation in terms of satisfactory work and work attitudes. More complete details are found in the handbook prepared for the student of this curriculum.

Ind. Ed. 140 (Ed. 140.) Curriculum, Instruction, and Observation (3).

Major functions and specific contributions of Industrial Arts Education; its relation to the general objectives of the junior and senior high schools; selection and organization of subject matter in terms of modern practices and needs; methods of instruction; expected outcomes; measuring results; professional standards. Twenty periods of observation.

Ind. Ed. 143. Industrial Safety Education I (2).

This course deals briefly with the history and development of effective safety programs in modern industry and treats causes, effects, and values of industrial safety education inclusive of fire prevention and hazard controls.

Ind. Ed. 144. Industrial Safety Education II (2).

In this course exemplary safety practices are studied through conference discussions,

group demonstrations, and organized plant visits to selected industrial situations. Methods of fire precautions and safety practices are emphasized. Evaluative criteria in safety programs are formulated.

Ind. Ed. 145, 146. Industrial Hygiene Education (2, 2).

Ind. Ed. 145 deals with the theory and Ind. Ed. 146 with the practices of the following: Organization of plant medical department; medical services in industry; prevention and control of occupational disease; control of air contamination; the venereal disease problem in industry; fatigue; nutrition; sanitation; illumination; noise; radiant energy; heating and ventilation; maximum use of manpower; absenteeism.

Ind. Ed. 148. Student Teaching in Secondary Schools (2-8).

First and second semesters. See Ed. 148. Laboratory fee, \$30.

Ind. Ed. 150. Training Aids Development (2).

Study of the aids in common use as to their source and application. Special emphasis is placed on principles to be observed in making aids useful to shop teachers. Actual construction and application of such devices will be required.

Ind. Ed. 157. Tests and Measurements (2).

Prerequisite, Ed. 150 or consent of instructor. The construction of objective tests for occupational and vocational subjects.

Ind. Ed. 160. Essentials of Design (2).

Two laboratory periods a week. Prerequisites, Ind. Ed. 1 and basic shop work. A study of the basic principles of design and practice in their application to the construction of shop projects. Laboratory fee, \$5.00.

Ind. Ed. 161. Principles of Vocational Guidance (2).

This course identifies and applies the underlying principles of guidance to the problems of educational and vocational adjustment of students.

Ind. Ed. 164. Shop Organization and Management (2).

This course covers the basic elements of organizing and managing an Industrial Education program including the selection of equipment and the arrangement of the shop.

Ind. Ed. 165. Modern Industry (2).

This course provides an overview of manufacturing industry in the American social, economic, and culture pattern. Representative basic industries are studied from the viewpoints of personnel and management organization, industrial relations, production procedures, distribution of products, and the like.

Ind. Ed. 166. Educational Foundations of Industrial Arts (2).

A study of the factors which place Industrial Arts education in any well-rounded program of general education.

Ind. Ed. 167. Problems in Occupational Education (2).

The purpose of this course is to secure, assemble, organize, and interpret data relative to the scope, character and effectiveness of occupational education.

Ind. Ed. 168. Trade or Occupational Analysis (2).

Provides a working knowledge of occupational and job analysis which is basic in organizing vocational-industrial courses of study. This course should precede Ind. Ed. 169.

Ind. Ed. 169. Course Construction (2).

Surveys and applies techniques of building and reorganizing courses of study for effective use in vocational and occupational schools.

Ind. Ed. 170. Principles of Vocational Education (2).

The course develops the Vocational Education movement as an integral phase of the American program of public education.

Ind. Ed. 171. History of Vocational Education (2).

An overview of the development of Vocational Education from primitive times to the present.

For Graduates**Ind. Ed. 207. Philosophy of Industrial Arts Education (2).**

This course is intended to assist the student in his development of a point of view as regards Industrial Arts and its relationship with the total educational program. He should, thereby, have a "yardstick" for appraising current procedures and proposals and an articulateness for his own professional area.

Ind. Ed. 214. School Shop Planning and Equipment Selection (2).

This course deals with principles involved in planning a school shop and provides opportunities for applying these principles. Facilities required in the operation of a satisfactory shop program are catalogued and appraised.

Ind. Ed. 216. Supervision of Industrial Arts (2).**Ind. Ed. 220. Organization, Administration and Supervision of Vocational Education (2).**

This course surveys objectively the organization, administration, supervision, curricular spread and viewpoint, and the present status of vocational education.

Ind. Ed. 240. Research in Industrial Arts and Vocational Education (2).

This is a course offered by arrangement for persons who are conducting research in the areas of Industrial Arts and Vocational Education.

Ind. Ed. 241. Content and Method of Industrial Arts (2).

Various methods and procedures used in curriculum development are examined and those suited to the field of Industrial Arts education are applied. Methods of and devices for Industrial Arts instruction are studied and practiced.

Ind. Ed. 248. Seminar in Industrial Arts and Vocational Education (2).**MUSIC EDUCATION****For Advanced Undergraduates and Graduates****Mus. Ed. 125. Creative Activities in the Elementary School (2).**

Prerequisite, consent of instructor. A study of the creative approach to singing, listening, playing, rhythmic activity, and composition. These topics are studied in correlation with other areas and creative programs. (Kemble.)

Mus. Ed. 127. Methods and Materials for Program Productions in the Secondary School (2).

Prerequisite, consent of instructor. Designed especially for those interested in presenting musical assemblies, concerts and programs for all types. Methods of presentation and materials suitable for various occasions will be discussed.

Mus. Ed. 128. Workshop in Music for the Elementary School (2).

Prerequisite, consent of instructor. A study of the group activities and materials through which the child experiences music. The course is designed to aid both music specialists and classroom teachers. It includes an outline of objectives and a survey of instructional methods. (Kemble.)

Mus. Ed. 132. Workshop in Music for the Secondary School (2).

Prerequisite, consent of instructor. A study of the vocal and instrumental programs in the secondary school; the relationship of music to the core curriculum. The place of the musically less gifted adolescent in the programs will be given special attention. (Kemble.)

Mus. Ed. 139. Music in the Elementary School (3).

First semester. Prerequisite, senior standing. A survey of instructional materials; objectives; organization of subject matter; lesson planning; methods and procedures in singing, listening, rhythms, simple instruments, and creative activities for the music specialist in the elementary school. Twenty periods of observation will be required.

Mus. Ed. 155. Organization and Technique of Instrumental Class Instruction (2).

Prerequisite, consent of instructor. Practical instruction in the methods of tone production, tuning, fingering, and in the care of woodwind and brass instruments. A survey of the materials and published methods for class instruction. (Henderson.)

Mus. Ed. 170. Methods and Materials for Class Piano Instruction (2).

The study of the principles and techniques of teaching class piano. The following

groups, beginning and advanced, will be used for demonstrations: elementary school children, junior and senior high school students, adults. Special emphasis will be placed on the analysis of materials.

Mus. Ed. 171. String Teaching in the Public Schools (2).

A study of the problems of organizing and developing the string program in the public schools. Emphasis is placed on exploratory work in string instruments, on the study of teaching techniques, and on the analysis of music literature for solo, small ensembles, and orchestra.

Mus. Ed. 175. Methods and Materials in Vocal Music for the High School (2).

Prerequisite, consent of instructor. A survey of suitable vocal and choral repertoire for the high school. Problems of diction, interpretation, tone production, and phrasing. The course is designed primarily for choral directors and teachers of voice classes.

(Grentzer.)

Mus. Ed. 180. Instrumental Seminar (2).

Prerequisite, consent of instructor. Problems in the music directing of public-school instrumental organizations. A study of representative orchestral, band, and small-ensemble scores, and of the teaching problems involved.

(Jordan.)

For Graduates

Mus. Ed. 200. Research Methods in Music and Music Education (2).

The application of methods of research to problems in the fields of music and music education. The preparation of bibliographies and the written exposition of research projects in the area of the student's major interest.

(Grentzer.)

Mus. Ed. 201. Administration and Supervision of Music in the Public Schools (2).

The study of basic principles and practices of supervision and administration with emphasis on curriculum construction, scheduling, budgets, directing of in-service teaching, personnel problems, and school-community relationships.

Mus. Ed. 204. Current Trends in Music Education (Seminar) (2).

A survey of current philosophies and objectives of music in the schools. The scope and sequence of the music curricula, vocal and instrumental, on the elementary and secondary levels.

(Grentzer.)

Mus. Ed. 205. Seminar in Vocal Music in the Elementary Schools (2).

A comparative analysis of current methods and materials used in the elementary schools. A study of the music curriculum as a part of the total school program, and of the roles of the classroom teacher and the music specialist.

Mus. Ed. 206. Choral Conducting and Repertoire (2).

The study and reading of choral literature of all periods, including the contemporary, suitable for use in school and community choruses. Style, interpretation, tone quality, diction, rehearsal and conducting techniques are analyzed.

Mus. Ed. 207. Seminar in Vocal Music in the Secondary Schools (2).

A comparative analysis of current methods and materials used in teaching junior and senior high-school classes in general music, history and appreciation, theory, and voice; and in directing choral groups and community singing.

Mus. Ed. 208. The Teaching of Music Appreciation (2).

A study of the objectives for the elementary and secondary levels; the techniques of directed listening, the presentation of theoretical and biographical materials, course planning, selection and use of audio-visual aids, and library materials, and the correlation between music and the other arts.

Mus. Ed. 209. Seminar in Instrumental Music (2).

A consideration of acoustical properties and basic techniques of the instruments. Problems of ensemble and balance, intonation, precision, and interpretation are studied. Materials and musical literature for orchestras, bands, and small ensembles are evaluated.

Mus. Ed. 210. Advanced Orchestration and Band Arranging (2). Seminar

A study of arranging and transcription procedures in scoring for the orchestra and band. Special attention is given to the arranging problems of the instrumental director in the public schools. Prerequisite, Music 147 or the equivalent, or consent of the instructor.

SCIENCE EDUCATION***Sci. Ed. 6. The Natural Sciences in the Elementary School (2).**

Laboratory fee, \$2.00. Selecting, organizing, and teaching materials in the plant and animal world. For the elementary school teacher who needs help in identifying and making effective use of living materials brought to the classroom, assisting pupils to find answers to their questions, and planning other worthwhile science experiences. Extensive background in the subject matter of the biological sciences not required. (Blough.)

***Sci. Ed. 7. The Physical Sciences in the Elementary School (2).**

Laboratory fee, \$2.00. Similar to the previous course except that problems for study are selected from the various fields of the physical sciences such as electricity and magnetism, weather, heat, light, sound, etc. Non-technical, comprehensive treatment intended to give background in subject matter and methods to equip teachers for elementary school science teaching. (Blough.)

Sci. Ed. 105. Workshop in Science for Elementary Schools (2).

Designed to help teachers acquire general science understandings and to develop teaching materials for practical use in classrooms. Includes experiments, demonstrations, constructions, observations, field trips, and use of audio-visual materials. The emphasis is on content and method related to science units in common use in elementary schools. Laboratory fee, \$2.00. (Blough.)

*Students who have received four credits in Sci. Ed. 1, 2, 3 and 4 should not register for these courses.

Note: Sci. Ed. 6 and 7 replace Sci. Ed. 1, 2, 3, 4. Laboratory fees have been combined, making \$2.00 for each of the two courses instead of \$1.00 for each of the four courses.

Ed. 247. Seminar in Science Education (2).

(See page 54.)

NOTE: For courses in physical education and health education, see the Catalog of the College of Physical Education, Recreation, and Health. (Blough.)



Summer Campus

COLLEGE OF ENGINEERING

GLENN L. MARTIN INSTITUTE OF TECHNOLOGY

STAFF

S. Sidney Steinberg, B.E., C.E., Dean

WILLIAM ROBERT AHRENDT, Lecturer on Automatic Regulation.

S.B., Massachusetts Institute of Technology, 1941; S.M., 1942; Registered Professional Engineer.

REDFIELD WILMERTON ALLEN, Associate Professor of Mechanical Engineering.

B.S., University of Maryland, 1943; M.S., 1949.

RUSSELL BENNETT ALLEN, Professor of Civil Engineering.

B.S., Yale University, 1923; Registered Professional Engineer.

EDWARD SEWELL BARBER, Associate Professor of Civil Engineering.

B.S., University of Maryland, 1935; C.E., 1952; Registered Professional Engineer.

JACK BAILEY BLACKBURN, Associate Professor of Civil Engineering.

B.S.C.E., The University of Oklahoma, 1947; M.S.C.E., Purdue University, 1949; Ph.D., Purdue University, 1955. Registered Professional Engineer.

DONALD THEODORE BONNEY, Professor of Chemical Engineering.

B.E., The Johns Hopkins University, 1926; Ph.D., 1935; Registered Professional Engineer.

HAROLD DOTSON CATHER, Assistant Professor of Mechanical Engineering.

B.S., West Virginia University, 1949; M.S., West Virginia University, 1954.

ALBERT HUDIBURGH COOPER, Professor of Chemical Engineering.

B.S., University of Tennessee, 1929; M.S., 1930; Ph.D., Michigan State College, 1933; Registered Professional Engineer.

GEORGE FRANCIS CORCORAN, Professor of Electrical Engineering and Chairman of the Department.

B.S., South Dakota State College, 1923; M.S., University of Minnesota, 1925. Registered Professional Engineer.

GERALD CORNING, Associate Professor of Aeronautical Engineering.

B.S., New York University, 1937; M.E., The Catholic University of America, 1954.

LOUIS PETER COSTAS, Instructor in Chemical Engineering.

B.S., Purdue University, 1951.

JOHN BURTON COUNRYN, Associate Professor of Civil Engineering.

B.S., University of Alabama, 1946; M.S., 1948; Registered Professional Engineer.

DICK DUFFEY, Instructor in Chemical Engineering.

B.S., Purdue University, 1939; M.S., University of Iowa, 1940; Registered Professional Engineer.

RICHARD LONSDALE ELKINS, Instructor in Mechanical Engineering.

B.S., University of Maryland, 1953.

ADDISON BERNARD EYLER, Assistant Professor of Mechanical Engineering.

B.S., University of Maryland, 1947; M.S., 1950.

JACOB JOACHIM FREEMAN, Lecturer on Signal Analysis and Noise.

B.S., College of William and Mary, 1933; M.A., Columbia University, 1935; Ph.D., Catholic University of America, 1949.

CARL WILLIAM GOHR, Associate Professor of Civil Engineering.

B.S., Michigan State College, 1926. Registered Professional Engineer.

MELVIN SYLVESTER GRAY, JR., Instructor in Civil Engineering.

B.S., University of Maryland, 1955.

CHARLES RAYMOND HAYLECK, JR., Associate Professor of Mechanical Engineering.

B.S., University of Maryland, 1943; M.S., 1949.

DONALD CUMMINS HENNICK, Assistant Professor of Mechanical Engineering.

B.S., University of Maryland, 1941.

URS ERWIN HOCHULI, Assistant Professor of Electrical Engineering.

Dipl. Elektro-Techniker, Kantonales Technikum (Switzerland), 1950; M.S., University of Maryland, 1955.

LAWRENCE JUDSON HODGINS, Associate Professor of Electrical Engineering.

B.S., Pennsylvania State University, 1914; Registered Professional Engineer.

WILBERT JAMES HUFF, Professor of Chemical Engineering and Chairman of the Department; Director of the Engineering Experiment Station; Chairman, Division of Physical Sciences.

A.B., Ohio Northern University, 1911; A.B., Yale University, 1914; Ph.D., Yale University, 1917; D.Sc. (hon.) Ohio Northern University, 1927. Registered Professional Engineer.

ROBERT WILLIAM HURLBRINK, JR., Instructor in Mechanical Engineering.

B.S., (Agriculture) University of Maryland, 1951; B.S., (Engineering) 1953.

YING-CHEN HWANG, Research Assistant.

B.S.E.E., Chiao Tung University (China) 1942; M.S., University of Maryland, 1953.

JOHN WARREN JACKSON, Professor of Mechanical Engineering.

B.S., University of Cincinnati, 1934; M.E., 1937; M.S., California Institute of Technology, 1940; Registered Professional Engineer.

RALPH HENRY LONG, JR., Professor of Mechanical Engineering.

B.S.M.E., Tufts College, 1943; M.Eng., Yale University, 1948; D.Eng., Yale University, 1952; Registered Professional Engineer.

ROBERT FRANCIS LUCE, Instructor in Civil Engineering.

B.S., Yale University, 1910; Registered Professional Engineer.

GEORGE ARTHUR LUNDQUIST, Instructor in Electrical Engineering.

B.S., University of Maryland, 1948; LL.B., George Washington University, 1952.

JOHN ANDREWS MACLAUGHLIN, Liaison Assistant Professor at Army Chemical Center.

A.B., Harvard College, 1911; M.S., Massachusetts Institute of Technology, 1928.

GEORGE PETER MAGGOS, Instructor in Aeronautical Engineering.

B.S., University of Maryland, 1955.

LOUIS ETHELBERT OTTS, JR., Professor of Civil Engineering.

B.A., East Texas Teachers College, 1933; B.S., Agricultural and Mechanical College of Texas, 1946; M.S., 1946. Registered Professional Engineer.

WILLIAM A. PENNINGTON, Professor of Chemical Engineering (Metallurgical option).

B.S., Union University, 1925; Ph.D., Iowa State College, 1933.

HARRY WILLIAM PIPER, Assistant Professor of Civil Engineering.

B.Arch.E., Catholic University of America, 1940; Registered Professional Engineer.

HENRY WILLIAMS PRICE, Associate Professor of Electrical Engineering.

B.S., University of Maryland, 1943; M.S., 1950.

HENRY ROUSE REED, Professor of Electrical Engineering.

B.S., University of Minnesota, 1925; M.S., 1927; E.E., South Dakota State College, 1930; Ph.D., University of Iowa, 1941; Registered Professional Engineer.

LUTHER JAMES REID, JR., Instructor in Chemical Engineering.

B.S., University of Rochester, 1948.

ROBERT MATTHEW RIVELLO, Associate Professor of Aeronautical Engineering.

B.S., University of Maryland, 1943; M.S., 1948; Registered Professional Engineer.

CLIFFORD LEROY SAYRE, JR., Assistant Professor of Mechanical Engineering.

B.S., Duke University, 1947; M.S. Stevens Institute of Technology, 1950.

WILBURN CARROLL SCHROEDER, Professor of Chemical Engineering.

B.S., University of Michigan, 1930; M.S., 1931; Ph.D., 1933; Registered Professional Engineer.

JOSEPH ROBERT SCHULMAN, Lecturer on Pulse Techniques.

B.E.E., City College of City of New York, 1944; M.S., University of Maryland, 1951.

SHAN-FU SHEN, Associate Professor of Aeronautical Engineering.

B.S., National Central University (China) 1941; Sc.D., Massachusetts Institute of Technology, 1949.

AARON WILEY SHERWOOD, Professor of Aeronautical Engineering.

M.E., Rensselaer Polytechnic Institute, 1935; M.S., University of Maryland, 1943. Registered Professional Engineer.

HEINY WILLY SHIPPLING, Instructor in Mechanical Engineering.

B.S., California State Teachers College, Pennsylvania, 1952.

CHARLES ALFRED SHREEVE, JR., Professor of Mechanical Engineering.

B.E., The Johns Hopkins University, 1935; M.S., University of Maryland 1943; Registered Professional Engineer.

DAVID ELIE SIMONS, Assistant Professor of Electrical Engineering.

B.S., University of Maryland, 1949; M.S., 1951.

ERIC HENRY SMALL, Associate Professor of Electrical Engineering.

B.S., New York University, 1938; M.E.E., 1945; Registered Professional Engineer.

SAMUEL SIDNEY STEINBERG, Professor of Civil Engineering and Chairman of the Department; Dean of the College of Engineering.

B.E., Cooper Union School of Engineering 1910; C.E., 1913. Registered Professional Engineer.

JACK FREDERICK SWEARMAN, Instructor in Mechanical Engineering.

B.S., California State Teachers College, Pennsylvania, 1951.

JOHN LIVEZEY VANDERSLICE, Lecturer on Active Network Analysis and Network Synthesis.

B.S. in E.E., University of Pennsylvania, 1928; A.M., 1930; Ph.D., Princeton University, 1934.

THOMAS CHARLES GORDON WAGNER, Associate Professor of Electrical Engineering.

B.S., Harvard University, 1937; M.A., University of Maryland, 1940; Ph.D., 1943.

STANTON WALKER, Lecturer on Engineering Materials.

B.S., University of Illinois, 1917; Registered Professional Engineer.

JOSEPH WEBER, Professor of Electrical Engineering.

B.S., U. S. Naval Academy, 1940; Ph.D., Catholic University of America, 1951.

PRESLEY ALLEN WEDDING, Associate Professor of Civil Engineering.

B.S., University of Maryland, 1937; M.S., 1952; Registered Professional Engineer.

LEE WINOGRAD, Assistant Professor of Aeronautical Engineering.

B.S., University of Southern California, 1946; M.S., University of California (Berkeley), 1955.

WILLIAM ARTHUR WOCKENFUSS, Assistant Professor of Mechanical Engineering.

B.S., University of Maryland, 1949; M. Ed., 1952.

JOHN ELLIOTT YOUNGER, Professor of Mechanical Engineering and Chairman of the Department.

B.S., University of California, 1923; M.S., 1924; Ph.D., 1925; Registered Professional Engineer.

INSTITUTE FOR FLUID DYNAMICS AND APPLIED MATHEMATICS

JAMES LEROY ANDERSON, Research Associate (p. t.).

B.S., University of Chicago, 1946; M.S., 1949; Ph.D., Syracuse University.

HERBERT JOSEF BOMELBURG, Post-Doctoral Fellow.

Diplom, University of Gottingen (Germany), 1950; Dr. Rer. Nat., 1953.

JOHANNES MARTINUS BURGERS, Visiting Research Professor.

Doctor of Mathematics and Physics, University of Leiden; Doctor Honoris Causa, University Libre de Bruxelles 1948; Doctor Honoris Causa, University de Poitiers (France) 1950.

BOYD BALFORD CARY, JR., Research Associate.

B.S., University of Maryland, 1947; M.S., 1948; Ph.D., 1954.

JOAQUIN BASILIO DIAZ, Associate Research Professor.

B.A., University of Texas, 1940; Ph.D., Brown University, 1945.

DARSHAN SINGH DOSANJH, Research Associate.

B.Sc. University of Punjab, 1944; M.S.E., 1948; Ph.D., The Johns Hopkins University, 1953.

FRANCIS RYOSUKE HAMA, Assistant Research Professor.

M.E., University of Tokyo, 1940; D.Sc., 1952.

ALFRED OTTO HUBER, Research Associate.

Dipl. C.E., Swiss Federal Institute of Technology (Zurich, Switzerland) 1945; Dipl. Math. and Physics, 1949; Doctor of Math. Scis., 1952.

ISAO IMAI, Visiting Research Professor.

M.Sc. University of Tokyo, 1936; D.Sc., 1943.

GEOFFREY STUART STEPHEN LUDFORD, Associate Professor of Mathematics.

B.A., Cambridge University (England), 1948; M.A., 1952; Ph.D., 1952.

MONROE HARNISH MARTIN, Director, Institute for Fluid Dynamics and Applied Mathematics; Professor of Mathematics.

B.S., Lebanon Valley College, 1928; Ph.D., Johns Hopkins University, 1932.

ROBERT WILLIAM MCKELVEY, Post-Doctoral Fellow.

B.S., Carnegie Institute of Technology, 1950; M.S., University of Wisconsin, 1952; Ph.D., 1954.

ELLIOTT WATERS MONTROLL, Research Professor.

B.S., University of Pittsburgh, 1937; Ph.D., 1940.

SHIH I. PAI, Associate Research Professor.

B.S., National Central University (China), 1935; M.S., Massachusetts Institute of Technology, 1938; Ph.D., California Institute of Technology, 1940.

LAWRENCE EDWARD PAYNE, Assistant Research Professor.

B.S., Iowa State College, 1946; M.S., 1948; Ph.D., 1950.

WILLIAM HICKS PELL, Post-Doctoral Fellow.

B.S., University of Kentucky, 1936; M.S., 1938; Ph.D., University of Wisconsin, 1943.

EDWIN LOUIS RESLER, JR., Associate Research Professor.

B.S., University of Notre Dame, 1947; Ph.D., Cornell University, 1951.

MARCEL RIESZ, Visiting Professor.

Ph.D., University of Budapest, 1908; Honorary Ph.D., University of Copenhagen, 1950.

KARL LUDWIG STELLMACHER, Research Associate.

Ph.D., University of Gottingen, 1936; Habilitation, 1948.

TOMOYASU TANAKA, Research Associate.

Tokyo College of Science, 1941; M.S., Kyusyu University, 1943; Ph.D., 1953.

PHRIXOS JOHN THEODORIDES, Visiting Research Professor.

Dr.Sc.Techn., Federal Institute of Technology (Zurich, Switzerland), 1921.

HANS FELIX WEINBERGER, Assistant Research Professor.

B.S., Carnegie Institute of Technology, 1948; M.S., 1948; Sc.D., 1950.

ALEXANDER WEINSTEIN, Research Professor.

Ph.D., Zurich, 1921; Doct.es Sc., Paris, 1937.

JOHN ROBERT WESKE, Visiting Research Professor.

Dipl.Ing., Hanover Institute of Technology, 1924; M.S., Harvard University, 1931; S.D., 1934. Registered Professional Engineer.

ENGINEERING AND PHYSICAL SCIENCES LIBRARY

HENRICA EIJGENRAAM, Assistant Librarian.

B.S., in L.S., Library School, The Hague (The Netherlands) 1932; B.A., College of Languages and Literature, The Hague (The Netherlands), 1944; M.S. in L.S., Catholic University of America, 1953.

MARGUERITE RITCHIE, Librarian.

B.S., State Teachers College (Millersville, Pa.), 1939; M.S. in L.S., Catholic University of America, 1951.

COLLEGE OF ENGINEERING

GLENN L. MARTIN INSTITUTE OF TECHNOLOGY

S. Sidney Steinberg, B.E., C.E., Dean

THE primary purpose of the College of Engineering is to train young men to practice the profession of Engineering. It endeavors at the same time to equip them for their duties as citizens and for careers in public service and in industry.

In training professional engineers it is necessary that great emphasis be placed on the fundamentals of mathematics, science and engineering so as to establish a broad professional base. Experience has also shown the value of a coordinated group of humanistic-social studies for engineering students since their later professional activities are so closely identified with the public. It is well recognized that an engineering training affords an efficient preparation for many callings in public and private life outside the engineering profession.

The buildings occupied by the College of Engineering were made possible through the interest of Mr. Glenn L. Martin of the Glenn L. Martin Company of Baltimore, which resulted in large gifts from the Company to the University, to which have been added funds made available by the Legislature of Maryland. The units consist of four structures, namely, the General Engineering building, an Engineering Laboratories building, a Chemical Engineering building, and a Wind Tunnel building. The Departments of Mathematics, Physics, Chemistry, and Industrial Arts, whose courses are basic to Engineering, are housed in buildings contiguous to and coordinated with the College of Engineering, thereby promoting a community of interest that is of great value to the departments concerned.

The length of the normal curriculum in the College of Engineering is four years and leads to the bachelor's degree. In most cases these four years give the engineering graduate the basic and fundamental knowledge necessary to enter upon the practice of the profession. Engineering students with superior scholastic records are advised to supplement their undergraduate programs by at least one year of graduate study leading to the master's degree. All the engineering departments encourage graduate work leading to the doctor's degree which is essential for graduate engineers desiring to enter research and development. Graduate programs will be arranged upon application to the chairman of the engineering department concerned.

In order to give the new student time to choose the branch of engineering for which he is best adapted, the freshman year of the several curricula is the same. Lectures and conferences are used to guide the student in making a proper choice. The sophomore courses in the various branches differ slightly, but in the junior and senior years the students are directed definitely along professional lines.

Admission Requirements

In selecting students for admission to the University more emphasis is placed upon good marks and other indications of probable success in college rather than upon a fixed pattern of subject matter. In general, 4 units of Eng-

lish, $3\frac{1}{2}$ units of Mathematics including Solid Geometry, and 1 unit each of Social and Natural Sciences is required. Fine Arts, Trade and Vocational subjects are acceptable as electives.

It is possible, however, for high school graduates having the requisite number of entrance units to enter the College of Engineering lacking one unit of Advanced Algebra and one-half unit of Solid Geometry. The program for such students would be as follows: during the first semester, five hours a week would be devoted to making up algebra and solid geometry; in the second semester, mathematics of the first semester would be scheduled; and the second semester mathematics would be taken in the Summer School.

All students desiring to enroll in the College of Engineering must apply to the Director of Admissions of the University of Maryland at College Park.

For a more detailed statement of admissions, write the Director of Publications for a copy of the "General Information Issue" of the Catalog.

Bachelor Degrees in the College of Engineering

Courses leading to the degree of Bachelor of Science are offered in the Departments of Aeronautical, Chemical, Civil, Electrical, and Mechanical Engineering, and in Metallurgy.

Costs

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140.00 to \$170.00 lodging for Maryland residents, or \$180.00 to \$220.00 for residents of other States and Countries; and laboratory fees which vary with the laboratory courses pursued. A matriculation fee of \$10.00 is charged all new students, and a college fee of \$4.00 per semester is charged to all students registered in the College of Engineering. A charge of \$250.00 is assessed to all students who are non-residents of the State of Maryland.

Military Instruction

All male students unless specifically exempted under University rules are required to take basic air force R. O. T. C. training for a period of two years. The successful completion of this course is a prerequisite for graduation but it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

During their Junior and Senior years, selected students may carry Advanced Air Force R. O. T. C. courses which lead to a regular or reserve commission in the United States Air Force.

General Information

For information with reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards,

religious denominational clubs, fraternities, sororities, societies and special clubs, the University Band, student publications, University Post Office and Supply Store, write to the Director of Publications for the General Information Issue of the Catalog.

Advanced Degrees in Engineering

Candidates for advanced degrees in Engineering and in Metallurgy are accepted in accordance with the procedure and requirements of the Graduate School. See Graduate School Catalog.

Equipment

The Engineering buildings are provided with lecture-rooms, recitation-rooms, drafting-rooms, laboratories, and shops for various phases of engineering work.

The drafting-rooms are fully equipped for practical work. The engineering student must provide himself with an approved drawing outfit, supplies, and books.

LABORATORIES

Aeronautical Engineering Laboratories

Aerodynamics Laboratory. The Aerodynamics Laboratory is equipped for study in several phases of aerodynamic problems. Research can be carried out in the following fields: Optical evaluation and pressure measurements in supersonic flows; total drag measurements on projectile-type bodies and spheres; analogue solutions of potential flow problems in both incompressible and compressible flow. Equipment available includes: 6-inch supersonic wind tunnel with interchangeable nozzle blocks for two-dimensional flows at Mach numbers varying from 1.2 to 3; two-foot circular low speed wind tunnel; ballistic range; water table for hydraulic analogy; large electrolytic tank for electric analogy; Schlieren optical system; high speed flash photographic unit; strain-gage type pressure pick-ups; manometer board; other accessories shared with the structures laboratory.

Wind Tunnel Laboratory. The University of Maryland Wind Tunnel has a test section measuring 7.75 feet by 11 feet with air velocities up to 280 miles per hour. The six component balance system prints and simultaneously punches data into International Business Machine cards. This permits the reduction of data automatically through use of standard punched card machines. A variable frequency power source with precision metering makes possible the operation of electric motors in airplane models to simulate propeller effects. Steady pressures are indicated on a 100-tube manometer board and unsteady pressures are recorded on a standard oscillograph with special electrical instruments.

The laboratory is currently engaged in a year-round program of airplane and missile development for aircraft companies and the military services. Provision is made for active participation of senior students in one test during the

year in connection with Aeronautical Laboratory. Facilities are also available to graduate students working on special subsonic problems.

Structures Laboratory. The laboratory is designed to extend and complement theoretical solutions to practical design problems and to provide facilities for proof tests of built-up structural units under both static and dynamic loads.

The equipment consists of a 400,000 pound capacity Universal testing machine, a 24,000 pound Universal testing machine complete with stress-strain recorder, a 500 ton hydraulic compression jack, hydraulic tension-compression jacks and pumps, and lead shot bags for applying structural loading. A rigid test rig is a permanent fixture in the laboratory. For measuring loads there are available traction dynamometers and SR-4 tension-compression load cells. The laboratory also has SR-4 strain indicating equipment with switching and balancing units, extensometers, compressometers, Huggenberger tensometers, and an oscillograph for measuring strain.

Differential Analyzer. A 10-integrator mechanical differential analyzer is jointly operated with the Electrical Engineering Department. This analyzer is used for the solution of differential equations which cannot be solved by analytical methods and are impractical to solve by numerical methods.

Aeronautical Shop. The shop includes complete facilities for the working of metal, sheet metal, and wood with particular emphasis on the tools used in aircraft construction.

The sheet metal shop includes squaring shears, bending brake, nibbler, bending rolls, aircraft sheet metal router, rivet squeezers, and an electric furnace with automatic control for heat treating rivets.

The machine shop includes two quick-change lathes, universal milling machine with vertical mill attachment, shaper, drill press, electric welder, acetylene welding and cutting outfit, metal cutting bandsaw, power hacksaw, tool grinders, arbor press, table saw, belt sander, slotter and two-ton hydraulic floor hoist.

Chemical Engineering Laboratories

The Chemical Engineering building contains lecture rooms, library, laboratories, shops, storerooms, dark rooms and offices, equipped for the full range of chemical engineering studies, from the elementary chemical and physical reactions underlying process development to the construction and operation of pilot plants and the design of full scale equipment, with provisions for specialized work in options such as electrochemical engineering, fuel engineering, nuclear engineering, and metallurgy. Laboratories are maintained for (1) General Testing and Control; (2) Unit Operations; (3) Unit Processes; (4) Electrochemical Engineering; (5) Metallurgy; (6) Gas and Fuel Analysis; (7) Cooperative Research; (8) Graduate Research. Shops include a complete machine shop, a wood shop and a student shop.

General Testing and Control Laboratory. In this laboratory there is available complete equipment for the chemical and physical testing of water, gases, coal, petroleum, and related chemicals, and for general industrial chemicals, both inorganic and organic.

Unit Operations Laboratory. This laboratory contains equipment for the study of fluid flow, heat flow, refrigeration, air conditioning, drying, filtration, distillation, evaporation, crystallization, crushing, grinding, combustion, gas absorption, extraction, and centrifuging. For the study of fluid flow, a permanent hydraulic assembly is available, and this includes flow meters of most types. A Chemical Control Laboratory is maintained in conjunction with the Unit Operations Laboratory.

In the laboratory there is a large column still with a kettle capacity of 100 gallons, equipped for the measurement of temperature and pressure, sampling devices, condensers, and vacuum receivers. This still is so designed that it can be used either as a batch type unit, continuous feed type, direct pot still, steam still, or as a vacuum still. Studies in evaporation can be made on a double effect evaporator, one unit of which is equipped with a horizontal tube bundle and the other with a vertical tube bundle. Dryers include cabinet, tray and vacuum types. Gas absorption equipment includes a stoneware column packed with different types of packings in respective sections so that comparative studies may be made. Filtration equipment includes an Oliver continuous vacuum filter and also plate and frame, Sweetland and Sparkler types. Combustion equipment available consists of an industrial carburetor, pot furnace, premix gas-fired furnace and the usual gas analysis equipment. For grinding there is a comminuting machine, jaw crusher, a disc crusher and ball mills. Mechanical shakers, standard sieve, and sub-sieve separator are available for particle size separation. Centrifugation studies may be made on a continuous super centrifuge, Tolhurst basket type or centrifugal dryer. Concentrating equipment includes a flotation cell and Wilfley table. Student shop facilities include a milling machine, shaper, lathes, drill presses, grinder, welding equipment, and other tools necessary for unit operation studies.

Unit Processes Laboratory. The Unit Processes Laboratory is designed to permit the preparation of chemicals on a semi-industrial scale from 1 pound to 100 pounds. Both organic and inorganic compounds can be made. An advantageous feature is the integration of this laboratory with the unit operations laboratory, thereby allowing a broad range of typical chemical engineering activities. Equipment includes apparatus for autoclaving, nitration, sulfonation, reduction, oxidation, esterification and neutralization, halogenation, amination, diazotization and the like. Substances such as dyes, plastics, wetting agents, organic insecticides, e. g., D.D.T., aniline, nitrobenzene, phenol, paradichlorobenzene, ethyl acetate, cellulose acetate, benzaldehyde, B-naphthyl methyl ether and many others can be synthesized.

Electrochemical Engineering Laboratory. This laboratory contains apparatus simulating industrial electrochemical engineering equipment, as well as small laboratory size units to illustrate principles of operation. Studies include electric furnace operations, metal winning and refining, electroplating, corrosion, electrochemical preparations, chlorine and caustic soda manufacture, instrumentation, and related operations and processes.

The laboratory contains small dry rectifiers, one 500-ampere 6-12 V motor generator set, several 300-ampere motor generator sets, 75 KVA variable D.C. supply for furnace operations, and numerous storage batteries as power sources. The equipment includes a small (25KVA) silicon carbide furnace,

aluminum electrolytic cell, small arc furnace for making ferrosilicon, ferrochromium, aluminum bronze and other alloys, numerous electrolytic cells for electroplating copper, lead, nickel, chromium, zinc, cadmium, brass, silver, gold, rhodium, and other metals.

Metallurgical Laboratories. These laboratories contain equipment for heat treating, testing and metallographic work. The large furnaces available for heat treating include a 16 KW Hoskins muffle furnace, an 18 KW Hevi-Duty salt pot furnace, an 8 KW Leeds and Northrup Vapocarb unit, and an American Gas Furnace Company salt pot furnace. Two special units are also available for student and research work. These are a 10 KW General Electric Electronic heater and an arc furnace. In addition to the above, a number of smaller furnaces are available for general laboratory use.

The testing equipment consists of one Baldwin 60,000 lb. Southwark-Tate-Emery testing machine, one 5,000 lb. Dillon Universal Tester, one 110/220 ft. lb. Riehle impact testing machine, and a Chapman high temperature testing machine. Brinell and Rockwell hardness testers are also available.

The metallographic equipment consists of one Vickers projection microscope with full range of accessories, a number of smaller metallurgical microscopes, several Gamma cameras for the small microscopes, a Disa electro-polishing unit, and all additional equipment (mounting presses, sanders, polishing wheels, etc.), necessary for mounting and preparing specimens for examination. The metallurgical laboratories are also equipped with a North American Phillips 60 KV-50 MA X-ray diffraction apparatus.

Civil Engineering Laboratories

Hydraulics Laboratory. The equipment consists of four electrically driven pumps together capable of circulating a maximum of 4,000 gallons of water per minute, a standpipe 5 feet in diameter and 60 feet high which can be used as a constant level tank at three different heads; 150 foot head tank, 300 foot head tank, 3 foot by 4 foot by 15 foot metal weir tank, 3 foot by 4 foot by 25 foot glass sided flume for weir and model experiments, Pelton water wheel with glass sides for direct observation, Rodney-Hunt reaction turbine, measuring tanks, weirs, nozzels, venturi meters, other meters, gauges, and other small apparatus necessary for the study of the flow characteristics of water.

Materials Testing Laboratory. Apparatus and equipment are provided for making standard tests on various construction materials, such as sand, gravel, stone, steel, concrete, lumber, brick, bituminous materials and road mixes.

Equipment includes a 400,000-pound universal hydraulic testing machine, a 60,000-pound universal hydraulic testing machine, three 100,000-pound screw power universal testing machines, torsion testing machine, impact testing machine, fatigue testing machine, weather-o-meter, Rockwell, Brinell and Shore hardness testers, abrasion testing machine, rattler, cement autoclave, constant temperature chamber, moist room and other facilities for mixing, curing and testing concretes and mortars, as well as extensometer and micrometer gauges, electrical strain gauges and other special devices for ascertaining the elastic properties of various materials.

Sanitary Laboratory. The laboratory is designed to provide facilities for instruction and research in water and sewage problems.

The apparatus and equipment required to make standard chemical and bacteriological analyses of water and sewage are available.

Ample space and equipment for model work are provided in this laboratory and since it is adjacent to the hydraulics laboratory, access to its facilities for additional studies is available.

Soil Mechanics Laboratory. The laboratory is designed for instruction and research into the properties of soils and their structural applications. The laboratory is equipped for the performance of all the usual soil tests, sieve and hydrometer analysis, Atterberg limits, compaction, permeability, capillarity, consolidation and strength.

The strength testing equipment includes direct shear and triaxial devices to be loaded statically or by variable speed motors and a universal testing machine with a 240-pound low range and automatic recorder. A repetitive loading device is available to simulate fatigue or compaction from traffic loads. Compaction equipment includes an automatic tamper and a variable frequency vibration table.

Also available are field sampling and resistivity exploration equipment, California bearing ratio apparatus for field and laboratory, apparatus for chemical and microscopic studies and motorized pulverization and mixing equipment.

Structural Models Analysis Laboratory. This laboratory is equipped for the mechanical solution of indeterminate structures by use of scaled models. The equipment available for this analysis includes the Beggs Deformeter, the Eney Deformeter and the tools necessary for plastic model construction. Equipment for making brass spring equivalents of trussed frame-works is available, as are machines for photoelastic studies and membrane analogy (torsion) studies.

Research Foundation. The National Sand and Gravel Association and the National Ready Mixed Concrete Association have, by arrangement with the College of Engineering, established their joint testing and research laboratory at the University. The purpose of the Research Foundation thus organized is to make available to the Association additional facilities for its investigational work, and to provide for the College of Engineering additional facilities and opportunities for increasing the scope of its engineering research.

Surveying Equipment. Surveying equipment for plane, topographic, and geodetic surveying is provided properly to equip several field parties. A wide variety of surveying instruments is provided, including foreign as well as domestic makes; and stereoscopic instruments are available for the interpretation and use of aerial photographs.

Special Models and Specimens. A number of models illustrating various types of highway construction and highway bridges are available.

The College of Engineering has recently been the recipient of two extensive collections of minerals and geological specimens: one from the estate of the

late William H. Wagner of Washington, D.C., and the other from the estate of the late Walter C. Parkhurst of Baltimore, Md.

Electrical Engineering Laboratories

Electrical Machinery Laboratory. This laboratory, with a floor space of 5,760 square feet, is divided into four working areas, each area being serviced by a modern distribution switchboard and auxiliary panels. The distribution switchboard also provides inter-connection between each working area as well as to the various other laboratories situated throughout the electrical engineering department. Each working area is provided with an educational DC-AC motor generator and a variety of modern motors, generators, transformers, and other electrical devices of such size and design as to give typical performance characteristics. An overhead crane is available to facilitate the moving and rearrangement of the various machines.

Electric power is supplied to the laboratory by a three-unit motor-generator set consisting of a 150-HP synchronous motor driving a 50-KW, 125/250 volt direct current generator, and a 62.5 KVA, 80 per cent power factor, 3-phase, 60-cycle generator. This latter machine is so connected as to supply both 120 volts and 240 volts simultaneously. Modern switchgear provides well regulated voltage from each generator.

Adjoining the laboratory is an instrument and small-equipment room provided with a large assortment of measuring instruments essential to practical electrical testing, namely ammeters, voltmeters, wattmeters, watt-hour meters, frequency meters, strobotacs, tachometers, wheatstone bridges, double bridges, impedance bridges, oscillographs, and special rheostats.

A well appointed shop is available with modern metal and wood turning tools for the repair of equipment, the building of experimental devices, and the general repair of all laboratory facilities. Another adjoining room provides lecture room facilities, computation tables and reference material.

Industrial Electronics Laboratory. A floor area of 1,900 square feet adjacent to the machinery laboratory and connected with it by way of a two-ton monorail crane is equipped as an Industrial Electronics Laboratory.

This laboratory contains apparatus and controls similar to those used in industry in obtaining better products in greater quantities, by means of electronic devices.

The experimental apparatus consists of several amplidyne, an electronic welder, a high frequency heating unit, several types of electronic motor controllers, voltage regulators, photo-electric counters, thyratron rectifiers, servo-control systems, and X-ray installations.

The laboratory is energized from a distribution center similar to the system used in the adjacent machinery laboratory and in addition, a 400-cycle power source and high voltage power supplies are provided.

The instrument room and shop which serve the Machinery Laboratory also serve the Industrial Electronics Laboratory.

Sophomore Laboratory. A balcony overlooking the machine laboratory

is equipped with seven work stations at which basic electrical engineering experiments are performed.

Equipment is provided for fundamental measurements of current voltage, power, resistance, and transmission losses. Basic non-linear circuit concepts are also studied experimentally in this laboratory.

Electrical Measurements Laboratory. Fifteen basic measurements experiments which constitute the laboratory portion of the "Electrical Measurements" course are housed in this laboratory.

Ballistic galvanometers, long solenoids, flux meters, potentiometers, a-c bridges, oscillographs, rotating standards, and impedance-measuring circuits are employed in measuring electric and magnetic quantities and in calibrating electrical instruments.

Photometry and Oscillographic Laboratory. A laboratory, provided with a dark room, is available for photometric and oscillographic measurements. The photometry apparatus consists of a bar photometer and four types of portable photometers and light meters. Typical lighting installations are available for experimental study.

Electromagnetic oscillographs are available for studying transient and steady-state time variations of electric currents and voltages. The dark room facilities permit on-the-spot development of the photographic film.

Electronics and Radio Engineering Laboratories. This laboratory is equipped with eight work stations, four of which are specifically outfitted for basic electronics experiments and four specifically for radio engineering experiments.

The electronics equipment consists of various bread-board layouts, signal generators, cathode-ray oscilloscopes, vacuum tube voltmeters, frequency meters, and a wide range of indicating instruments. With this apparatus, pentode and thyatron characteristics are studied experimentally and basic electronic measurements are performed. The performance characteristics of amplifiers, oscillators, and regulated power supplies are also investigated in this section of the laboratory.

The radio equipment consists of various bread-board layouts, including mixers, discriminators, oscillators, IF stages, inverters, class C amplifiers, and push-pull audio stages. Complete radio receivers and transmitters are available both in commercial form and in demonstration panel form for experimental study.

Adjacent to this laboratory is a combined instrument room and radio repair shop.

Microwave Engineering Laboratory. Experimentation and measurements in the frequency spectrum ranging from 2,000 to 10,000 megacycles per second are performed in this laboratory.

Signal generators covering this frequency range as well as a wide variety of magnetron, klystron, and light-house tube oscillators are available.

Wave guides, slotted sections, coupling devices, attenuators, sectoral horns, and parabolic antennas are employed to demonstrate microwave techniques. Crystal detectors and bolometers are provided for signal detection and power measurements respectively.

Transmitter Laboratory. Space is provided on the upper floor of the main engineering building for the experimental study of long lines, transmitters, and antennas. Receiving and transmitting apparatus, as well as a shielded enclosure, are available for this purpose. Owing to the location of the laboratory, antennas may be installed readily and connected from the transmitter to the roof of the building, where a 50-by-500-foot unobstructed area may be used for antenna pattern measurements.

Mechanical Engineering Laboratories

Applied Mechanics Laboratory. This laboratory is equipped for the study of Dynamics and Stress Analysis. Experiments and research can be carried out in the fields of: vibration, steady and transients, photo-elasticity, and related subjects.

The equipment includes A.C. and D.C. strain gauge amplifiers, transient recorder and printers, vibrographs, 15G vibrating table, vibration pick-ups of various types and a photoelasticity bench for the study of two dimensional stress problems.

Engine Laboratory. This laboratory is for instruction in all phases of Internal Combustion Engine work.

Experiments and research can be carried out in the fields of: ignition, injection, combustion and detonation, and engine performance.

Included in this laboratory are: variable compression ratio test engines for octane determination, diesel operation and general ignition work; multi-cylinder gasoline engines: eddy current, electric, and water dynamometers; and three jet engines. In addition there are indicators of various kinds including Piezo-electric and Cox intermittent as well as a number of different exhaust gas analyzers and temperature measuring devices.

Heating, Air Conditioning and Refrigeration Laboratory. Equipment is available in these laboratories for the study of heating and cooling units plus air flow, dehumidification and humidification systems. Heating tests can be made on the performance of coal and oil burning units and hot water or warm air space heaters. In the study of refrigeration, freon and ammonia vapor compression units and absorption units are arranged for visual demonstration and equipped for performance tests.

In most cases, laboratory units are fitted with both hand and commercial automatic controls. Instruments that are used include mechanical and hot wire anemometers, pitot tubes, gas analyzers, orifice plates, inclined and vertical manometers, thermocouples, potentiometers, resistance thermometers and sling psychrometers.

Metallography Laboratory. This laboratory is equipped for the physical

study of metals. Research and practice can be carried out in this laboratory in the following fields: crystallography and alloy systems, heat treatment and strength of materials, and macro and micro examination of metals. Included also are controlled heat treating and melting furnaces, bakelite mold press, polishing wheels, etching equipment, microscopes, photographic equipment, Universal testing machine, fatigue testing machine, hardness tester, Jominy end quench testing equipment, creep testing machine, cutting off wheels, thermocouples and pyrometers, and other special instruments.

The laboratory has a Bausch and Lomb I L S metalloscope for producing photomicrographs up to 2,000 magnifications.

Steam Power Laboratory. This laboratory is equipped for the study of steam power. Experiments and research can be carried out in this laboratory in the following fields: turbines, compressors, parallel operation of A.C. turbo-generators, series and parallel operation of turbines, condenser characteristics, etc.

Included in this laboratory are steam turbines, compressors, engines, indicators, condensers, injectors, and various special equipment and instruments. There is also a complete Educational Power Plant consisting of two 20KW A.C. turbogenerators, condenser, synchronous motor and gauge board.

Thermodynamics and Heat Transfer Laboratory. This laboratory is equipped for study and research in Thermodynamics and Heat Transfer.

Experiments can be performed in the determination of viscosity, heating value, conductivity, calibration of gauges, etc.

Equipment includes: bomb calorimeters, Junkers calorimeters, viscosimeters, distillation apparatus, conductivity box, Brown temperature (six channel) recorder, potentiometers, galvanometers, and related equipment.

Machine Shop. The machine shop is equipped with various types of lathes, planers, milling machines, drill presses, shaper, midget mill, and precision boring head. Equipment is available for gas and electric arc welding.

The shop equipment not only furnishes practice, drill, and instruction for students, but makes possible the complete production of special apparatus for conducting experimental and research work in engineering.

ENGINEERING AND PHYSICAL SCIENCES LIBRARY

As a supplement to the general University Library, the College of Engineering is fortunate to have a large and well-equipped Engineering and Physical Sciences Library located in the north wing of the new Mathematics building immediately adjacent to the General Engineering building. This Library consists of a commodious and comfortable reading room on the first floor, and three floors of book stacks above, with a capacity of over 100,000 volumes. All stacks are open to the students and contain individual study desks and lockers for student use. Six small conference rooms, equipped with chalkboards, are available for groups desiring to study together; and a number of individual study rooms are available for assignment to graduate students or others engaged in intensive

research. A room on the second stack floor is equipped with micro-film and micro-card readers.

The Library contains collections on both the graduate and undergraduate levels in the fields of engineering, mathematics, physics, and industrial education, including approximately 800 subscriptions to scientific and technical journals. Special book collections donated by prominent engineers in several fields are housed here. Several newspapers are received daily, and the Maryland student chapters of the various engineering societies provide subscriptions to magazines of general recreational interest.

ANTIQUE TOOL EXHIBIT

A collection of interesting American antique hand tools, presented to the College of Engineering in memory of their collector, Mr. Herbert T. Shannon, is on exhibition in ten display cases on the first floor corridor of the Engineering classrooms building.

CURRICULA

The normal curriculum of each department is outlined on the following pages. The total credit hours required for graduation varies from 149 to 160, depending upon the engineering department in which the student is enrolled. Students are expected to attend and take part in the meetings of the student chapters of the technical engineering societies.

All curricula in the College of Engineering have been accredited by the Engineers' Council for Professional Development (ECPD), the national accrediting agency.

Student branches of the following national technical societies are established in the College of Engineering: American Institute of Chemical Engineers, American Society of Civil Engineers, American Institute of Electrical Engineers, American Society of Mechanical Engineers, Institute of Aeronautical Sciences, and Institute of Radio Engineers. The student branches meet regularly for the discussion of topics dealing with the various fields of engineering.

A student in the College of Engineering will be certified as a junior when he shall have passed all the basic technical courses of the Freshman and Sophomore years with an average grade of C (2.0) or higher.

A general average of at least C (2.0) is required for graduation from the College of Engineering; in addition, the student must obtain a grade of C or higher in each of his departmental professional courses of the junior and senior years.

The proximity of the University to Baltimore and Washington, and to other places where there are large industrial enterprises, offers an excellent opportunity for the engineering student to observe what is being done in his chosen field. An instructor accompanies students on all inspection trips, and students are required to submit a written report of each trip.

The courses listed in the curricula to follow will be found described in detail on the succeeding pages.

BASIC CURRICULUM FOR ALL FRESHMAN STUDENTS

All freshman engineering students are required to take the following curriculum:

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 1, 2—Composition and American Literature.....	3	3
Speech 7—Public Speaking.....	....	2
Math. 18, 19, Elementary Mathematical Analysis.....	5	5
Chem. 1, 3—General Chemistry.....	4	4
Dr. 1, 2—Engineering Drawing.....	2	2
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	18	20

AERONAUTICAL ENGINEERING

Aeronautical Engineering deals with the design, construction, and maintenance of aircraft and aircraft power plants; aerodynamics and performance of aircraft; structural design and mechanical equipment; and the organization and operation of industrial aircraft plants.

Aeronautical Engineering Curriculum

Sophomore Year

G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Dr. 3—Advanced Engineering Drawing.....	2	....
Shop 1—Machine Shop Practice.....	2	....
Shop 2—Machine Shop Practice.....	....	1
Shop 3—Manufacturing Processes.....	....	1
Aero. E. 50—Airplane Detail Drafting.....	....	1
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	20	19

Junior Year

*Eng. 3, 4—Composition and World Literature; or.....	3	3
*Eng. 5, 6—Composition and English Literature.....	3	3
Math. 64—Differential Equations for Engineers.....	3	....
Mech. 2—Statics and Dynamics.....	5	....
Mech. 52—Strength of Materials.....	....	5
M. E. 53—Metallography.....	3	....
M. E. 100—Thermodynamics.....	3	....
Aero. E. 101—Aerodynamics I.....	....	3
Aero. E. 105—Airplane Fabrication Shop.....	....	1
Aero. E. 109—Aircraft Power Plants.....	....	3
E. E. 51, 52—Principles of Electrical Engineering.....	4	4
Total.....	21	19

*A qualifying test is given during registration to determine whether the student is adequately prepared for Math. 18 and 19. A student failing this test should take Math. 1, Introductory Algebra, without credit.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
*H. 5, 6—History of American Civilization.....	3	3
Aero. E. 102—Aerodynamics II.....	2	....
Aero. E. 106—Airplane Fabrication	1	....
Aero. E. 107, 108—Airplane Design.....	4	4
Aero. E. 110—Aircraft Power Plants.....	3	....
Aero. E. 111, 112—Aeronautical Laboratory.....	2	2
Aero. E. 113, 114—Mechanics of Aircraft Structures.....	3	4
Aero. E. 115—Aerodynamics III.....	....	3
Aero. E. 117—Aircraft Vibrations.....	....	2
Total.....	18	18

CHEMICAL ENGINEERING

Chemical Engineering deals primarily with the industrial and economic transformation of matter. It seeks to assemble and develop information on chemical operations and processes of importance in modern life and to apply this under executive direction, according to engineering methods, for the attainment of economic objectives. Modern chemical research has contributed so much to industrial and social welfare that the field of the chemical engineer may now be said to cover practically every operation in which any industrial material undergoes a change in its chemical identity.

When the Department of Chemical Engineering was founded in 1937, the Board of Regents transferred all the work in Industrial Chemistry, including the staff and equipment, to the Department of Chemical Engineering.

Beginning in 1948-49, the Department of Chemical Engineering expanded its offerings to include an option in Metallurgy. Students who elect this option, which is outlined below, will receive their bachelor's degree in preparation for work in Metallurgy. In 1954, instruction in Nuclear Engineering was added.

Chemical Engineering Curriculum

<i>Sophomore Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Chem. 35, 37—Elementary Organic Chemistry Lectures.....	2	2
Chem. 36—Elementary Organic Laboratory	2	....
Chem. 19—Quantitative Chemical Analysis.....	4	....
Ch. E. 15—Stoichiometry and Chemical Engineering Control....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	21	19

*A. S. 101, 102 and A. S. 103, 104—Advanced Air Force R. O. T. C.—3 credits per semester may be substituted

<i>Junior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Econ. 37—Fundamentals of Economics	3	....
*Eng. 3, 4—Composition and World Literature; or	3	3
*Eng. 5, 6—Composition and English Literature	3	3
Ch. E. 103, I, s—Elements of Chemical Engineering.....	3	3
Chem. 187, 189—Elements of Physical Chemistry Lectures.....	3	3
Chem. 188, 190—Physical Chemistry Laboratory.....	2	2
Mech. 1—Statics and Dynamics.....	3	....
Mech. 51—Strength of Materials.....	....	3
Ch. E. 131—Chemical Engineering Economics.....	....	2
Ch. E. 140—Introduction to Nuclear Technology.....	2	....
G. & P. 1—American Government.....	....	3
Total	19	19

<i>Senior Year</i>		
+*H. 5, 6—History of American Civilization	3	3
Ch. E. 105, I, s—Advanced Unit Operations.....	5	5
Ch. E. 109, I, s—Chemical Engineering Thermodynamics.....	3	3
Ch. E. 112, 113—Industrial Chemical Technology	3	3
E. E. 51, 52—Principles of Electrical Engineering.....	4	4
†Ch. E. 104—Seminar.....	1	1
Ch. E. 116—Applications of Adv. Math. Analysis in Chem. Engineering	3	....
Ch. E. 123—Elements of Plant Design .....	....	3
Total	22	22

Seniors desiring to do so may audit Mech. 53 in preparation for licensing examinations

Metallurgical Option

<i>Sophomore Year</i>		
G. & P. 1—American Government.....	3	....
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Chem. 19—Quantitative Chemical Analysis.....	4	....
Ch. E. 15—Stoichiometry and Chemical Engineering Control....	....	4
Met. 23—Non-ferrous and Ferrous Metallurgy.....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total	20	21

*A. S. 101, 102, 103, 104—Advanced Air Force R. O. T. C.—3 credits per semester may be substituted.

†Students who are to become candidates for graduate degrees requiring foreign language may elect instead a foreign language and secure the American History credit in their graduate program. Students who wish to do graduate work in Electrochemical Engineering may elect Ch. E. 114, "Applications of Electrochemistry," and secure the American History credit in their graduate program.

‡Students prepare reports on current problems in Chemical Engineering and participate under supervision of staff member. The content of this course is constantly changing so a student may receive a number of credits by re-registration.

	Semester	
	I	II
Junior Year		
*Eng. 3, 4—Composition and World Literature.....		
or	3	3
*Eng. 5, 6—Composition and English Literature.....		
Chem. 187, 189—Elements of Physical Chemistry.....	3	3
Met. 64, 66—Physical Metallurgy.....	5	5
Ch. E. 103, I, s—Elements of Chemical Engineering.....	3	3
Mech. 1—Statics and Dynamics.....	3	....
Mech. 51—Strength of Materials.....	....	3
Chem. 188, 190—Physical Chemistry Laboratory.....	2	2
Total.....	19	19
Senior Year		
Met. 182, 183—Optical & X-Ray Metallography.....	4	4
Met. 164, 166—Thermodynamics of Metallurgical Processes	3	3
Ch. E. 116—Application of Adv. Mathematical Analysis in Chemical Engineering	3	....
†Met. 104—Senior Metallurgical Seminar	1	1
Met. 168, 170—Metallurgical Investigations	2	4
Econ. 37—Fundamentals of Economics .....	....	3
*†H. 5, 6—History of American Civilization	3	3
Ch. E. 140—Introduction to Nuclear Technology	2	....
Total	18	18

CIVIL ENGINEERING

Civil Engineering deals with the design, construction, and maintenance of highways, railroads, waterways, bridges, buildings, water supply and sewerage systems, harbor improvements, dams, and irrigation systems, and involves surveying and mapping, including photogrammetry.

Civil Engineering Curriculum

Sophomore Year

G. & P. 1—American Government.....	3	....
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Mech. 1—Statics and Dynamics.....	....	3
Surv. 1—Plane Surveying	2	....
Surv. 50—Advanced Surveying.....	....	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	18	20

*A. S. 101, 102, 103, 104. Advanced Air Force R. O. T. C., 3 credits per semester, may be substituted.

†Students prepare reports on current problems in Metallurgy and participate under supervision of staff member. The content of this course is constantly changing so a student may receive a number of credits by re-registration.

†Students who are to become candidates for graduate degrees requiring foreign language may elect instead a foreign language and secure the American History credit in their graduate program. Students who wish to do graduate work in Electrochemical Engineering may elect Ch. E. 114, "Applications of Electrochemistry," and secure the American History credit in their graduate program.

	Semester	
	I	II
<i>Junior Year</i>		
*Eng. 3, 4—Composition and World Literature; or.....	3	3
*Eng. 5, 6—Composition and English Literature.....	3	3
Soc. 1—Sociology of American Life.....	...	3
Dr. 3—Advanced Engineering Drawing.....	2	...
Geol. 2—Engineering Geology.....	...	2
Speech 108—Public Speaking.....	...	2
E. E. 50—Fundamentals of Electrical Engineering.....	3	...
M. E. 50—Principles of Mechanical Engineering.....	...	3
Mech. 50—Strength of Materials.....	4	...
Mech. 53—Materials of Engineering.....	...	2
C. E. 50—Fluid Mechanics.....	3	...
C. E. 100—Theory of Structures.....	...	4
Surv. 100—Curves and Earthwork.....	3	...
Total.....	18	19
<i>Senior Year</i>		
*H. 5, 6—History of American Civilization.....	3	3
Eng. 7—Technical Writing.....	...	2
Econ. 37—Fundamentals of Economics.....	3	...
Bact. 55—Lectures in Sanitary Bacteriology.....	2	...
Engr. 100—Engineering Contracts and Specifications.....	...	2
C. E. 101—Soil Mechanics.....	3	...
C. E. 102—Structural Design.....	6	...
C. E. 103—Concrete Design.....	...	6
C. E. 104—Water Supply.....	3	...
C. E. 105—Sewerage.....	...	3
C. E. 106—Elements of Highways.....	...	3
Total.....	20	19

ELECTRICAL ENGINEERING

Electrical Engineering deals with the generation, transmission, distribution, and utilization of electrical energy; and with the transmission and reception of intelligence as, for example, telephone, radio, radar, and television systems. Industrial Electronics and Automatic Regulation (or Servomechanisms) are two relatively new branches of Electrical Engineering which are in the creative stage of development.

Electrical Engineering Curriculum

Sophomore Year

G. & P. 1—American Government.....	3	...
Soc. 1—Sociology of American Life.....	3	...
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Mech. 1—Statics and Dynamics.....	...	3
E. E. 1—Basic Electrical Engineering.....	...	4
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	19	20

*A. S. 101, 102, 103, 104—Advanced Air Force R. O. T. C.—3 credits per semester may be substituted.

	Semester	
	I	II
<i>Junior Year</i>		
*Eng. 3, 4—Composition and World Literature; or.....	3	3
*Eng. 5, 6—Composition and English Literature.....	3	3
Mech. 51—Strength of Materials.....	3	....
C. E. 50—Fluid Mechanics.....	....	3
Math. 64—Differential Equations.....	3	....
E. E. 60—Electricity and Magnetism.....	3	....
Ch. E. 140—Introduction to Nuclear Technology	2	....
E. E. 65—Direct Current Machinery.....	....	3
E. E. 100—Alternating Current Circuits.....	4	....
E. E. 101—Engineering Electronics .....	....	5
E. E. 104—Communication Circuits .....	....	4
Total.....	18	18
<i>Senior Year</i>		
*H. 5, 6—History of American Civilization	3	3
M. E. 51—Thermodynamics	4	....
M. E. 52—Power Plants .....	....	4
E. E. 102—Alternating Current Machinery	4	....
†E. E. 105, 106—Radio Engineering	4	4
†E. E. 107—Electrical Measurements .....	....	4
E. E. 108—Electric Transients	3	....
E. E. 109—Pulse Techniques .....	....	3
†E. E. 110—Transistor Circuitry .....	....	3
†E. E. 115—Feedback Control Systems .....	....	3
†E. E. 120—Maxwell's Equations .....	....	3
Total	18	17

MECHANICAL ENGINEERING

Mechanical Engineering deals with the design, construction, and maintenance of machinery and power plants; heating, ventilation, and refrigeration; and the organization and operation of industrial plants.

Mechanical Engineering Curriculum

Sophomore Year

G. & P. 1—American Government.....	3	....
Soc. 1—Sociology of American Life.....	....	3
Math. 20, 21—Calculus.....	4	4
Phys. 20, 21—General Physics.....	5	5
Surv. 1—Plane Surveying.....	....	2
Dr. 3—Advanced Engineering Drawing.....	2	....
Shop 1—Machine Shop Practice.....	2	....
Shop 2—Machine Shop Practice.....	....	1
Shop 3—Manufacturing Processes.....	....	1
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Physical Activities.....	1	1
Total.....	20	20

*A. S. 103 and 104—Advanced Air Force R. O. T. C.—3 credits per semester may be substituted.

†Either E. E. 106 or E. E. 107.

‡Three Semester hours of Electrical Engineering elective.

<i>Junior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
*Eng. 3, 4—Composition and World Literature; or	3	3
*Eng. 5, 6—Composition and English Literature.....	3	3
Math. 64—Differential Equations for Engineers.....	3	....
Mech. 2—Statics and Dynamics.....	5	....
Mech. 52—Strength of Materials.....	....	6
E. E. 51, 52—Principles of Electrical Engineering.....	4	4
M. E. 53—Metallography.....	....	3
M. E. 54—Fluid Mechanics.....	....	3
M. E. 100—Thermodynamics.....	3	....
Total.....	18	18

Senior Year—General Option

Engr. 100—Engineering Contracts and Specifications.....	....	2
*H. 5, 6—History of American Civilization.....	3	3
M. E. 101—Heat Transfer.....	2	....
M. E. 102—Heating and Air Conditioning.....	....	3
M. E. 103—Refrigeration	3	....
M. E. 104, 105—Prime Movers.....	4	4
M. E. 106, 107—Mechanical Engineering Design.....	4	4
M. E. 108, 109—Mechanical Laboratory.....	2	2
Total.....	18	18

Senior Year—Applied Mechanics Option

Engr. 100—Engineering Contracts and Specifications.....	....	2
*H. 5, 6—History of American Civilization.....	3	3
M. E. 101—Heat Transfer	2	....
M. E. 110—Applied Elasticity	3	....
M. E. 111—Dynamics .....	....	3
M. E. 104, 105—Prime Movers.....	4	4
M. E. 106, 107—Mechanical Engineering Design.....	4	4
M. E. 108, 109—Mechanical Laboratory.....	2	2
Total.....	18	18

AGRICULTURE — ENGINEERING

A five-year combined program in Agriculture and Engineering, arranged jointly by the College of Agriculture and the College of Engineering, permits students to become candidates for the degree of Bachelor of Science in the College of Agriculture at the end of four years and for the degree of Bachelor of Science in the Departments of Civil, Electrical, Mechanical, or Chemical Engineering at the end of the fifth year.

*A. S. 103, 104—Advanced Air Force R. O. T. C.—3 credits per semester may be substituted.

*A. S. 101, 102, 103, 104—Advanced Air Force R. O. T. C.—3 credits per semester may be substituted.

Details of this program will be found listed in the catalog of College of Agriculture.

FELLOWSHIPS OF THE NATIONAL SAND AND GRAVEL ASSOCIATION RESEARCH FOUNDATION AND THE NATIONAL READY MIXED CONCRETE ASSOCIATION RESEARCH LABORATORY

The University of Maryland, in cooperation with the National Sand and Gravel Association and the National Ready Mixed Concrete Association, offers Fellowships for research on appropriate problems related to the sand and gravel and the ready mixed concrete industries. That offered by the National Sand and Gravel Association is known as the Stanton Walker Fellowship. Two are offered by the National Ready Mixed Concrete Association, known as the Stephan Stepanian and the C. Dolly Gray Fellowships. Fellows enter upon their duties on August 1 and continue for 11 months. Payments under the Fellowships are made at the end of each month and amount to \$1500 for the year, in addition to tuition fees and costs of books.

Fellows register as students in the Graduate School of the University of Maryland. Class work is directed by the heads of the departments of instruction, but about half of the time will be spent in research work. The faculty supervisor is the Dean of the College of Engineering.

These fellowships are open to graduates in Engineering from an accredited college or university, who are qualified to undertake graduate study and research work leading to a Master's degree. Applications should be accompanied by a certified copy of college record, applicant's recent photograph, statement of technical and practical experience (if any), and letters from three persons, such as instructors or employers, covering specifically the applicant's character, ability, education, and experience.

The applications should be addressed: Dean S. S. Steinberg, College of Engineering, University of Maryland, College Park, Maryland.

INSTITUTE FOR FLUID DYNAMICS AND APPLIED MATHEMATICS

The Institute for Fluid Dynamics and Applied Mathematics was established by the University to carry out fundamental research in applied mathematics and in theoretical and experimental fluid dynamics.

Theoretical and experimental studies of phenomena surrounding bodies moving at very high speeds are being carried out with the aid of shock tubes of special design. A low turbulence wind tunnel has been completed and is now in operation for theoretical and experimental studies of turbulence. Work in applied mathematics ranges from the mathematical theory of classical hydrodynamics to the modern theory of transonic flow, with problems in eigenvalues, elasticity, electrostatics and partial differential equations coming in for consideration. A research program is also being carried out in the field of statistical mechanics, with emphasis on the theory of irreversible processes and the

theory of solids. The research program of the Institute is partially supported by outside contracts.

The Institute offers its facilities for theoretical and experimental research in collaboration with the scientific agencies of the government located nearby. A special group sponsored directly by the United States Air Force is studying the problems of stability and control of high speed airplanes. Of particular interest is an investigation now being carried out on the mechanism of turbulence.

The Institute comprises Research Professors, Associate Research Professors and Assistant Research Professors responsible for carrying on research in the designated areas. They are assisted by Research Associates, Research Assistants, Post Doctoral Fellows, and Graduate Assistants (candidates for higher degrees). Each year the Institute invites a scholar of international renown as Visiting Research Professor. Faculty members from several University Departments participate in the activities of the Institute.

The Institute sponsors weekly Seminars dealing with its own research fields. In addition, it holds weekly colloquia on research problems in applied mathematics and applied mechanics, and also sponsors occasional lectures by distinguished scientists.

Each semester members of the Institute, in cooperation with the Departments of Aeronautical Engineering, Mathematics and Physics, offer courses carrying full graduate credit for students working towards advanced degrees. These courses form part of the regular departmental offerings and further information about them may be obtained from the official publications of the University, or from the Department concerned.

ENGINEERING SHORT COURSES

Through short courses, the College of Engineering carries the benefits of engineering teaching to persons and industries in various parts of the State. These courses offer, in addition to regular instruction, an opportunity for the discussion of problems of interest to those engaged in public works, in public health, and in public safety.

Volunteer Firemen's Short Course. In cooperation with the Maryland State Firemen's Association a short course is held annually at College Park for volunteer firemen throughout the State. This four-day course is designed to bring to firemen by personal participation the newest developments in fire control and extinguishment, as well as information on equipment maintenance, salvage operations, and timely fire service developments.

Fire Inspectors' Short Course. This four-day short course is given for fire marshals and safety engineers from industry to develop fire prevention and fire protection programs of an advanced technical nature. Standards of the National Fire Protection Association are studied and their applications interpreted.

Motor Fleet Supervisors Training Course. This course is offered annually in cooperation with many national and state organizations interested in conserva-

tion and safety. It is open to fleet owners and operators, safety and personnel directors, fleet supervisors, and safety engineers.

Water and Sewage Treatment Plant Operators. This course is offered in cooperation with the State Department of Health, the Maryland-Delaware Water and Sewage Association, and the American Water Works Association.

Aggregates and Concrete. This course is sponsored jointly by the National Sand and Gravel Association, the National Ready Mixed Concrete Association and the College of Engineering. Its purpose is the instruction of representatives of member companies of the two associations in basic and fundamental technical information on aggregates and concrete.

Additional information regarding engineering short courses may be obtained from Dean S. S. Steinberg, College of Engineering, University of Maryland, College Park, Maryland.

FIRE SERVICE EXTENSION DEPARTMENT

The Fire Service Extension Department is organized under the College of Engineering in cooperation with the State Department of Vocational Education, and operates with both Federal and State funds. The Department provides in-service training for firemen with classes conducted throughout the State by about 100 local instructors, with three full-time Senior Instructors. Basic training of 60 clock hours is given in the fundamentals of firemanship, as well as an advanced course of 60 clock hours, covering the technical field of fire prevention, control and extinguishment, and a third section of 60 clock hours in related technical information. A training course of 45 clock hours for industrial plant fire brigades is also available. A four-day short course is held annually the first week in September at the University in the Fire Service Building. Specialized courses are scheduled to meet growing demand for more comprehensive technical knowledge. Included are Instructor Training, Conferences for Fire Company Presidents, Conferences for Fire Chiefs and Schools for Fire Officers. Firemen who have completed the prescribed training courses have been given preferential rating in positions in the military and naval fire fighting forces.

The Department also serves in an advisory capacity to the State Fire Marshal and municipal authorities in matters of fire prevention, fire protection, and fire safety regulations. The Director serves as Technical Advisor to the Maryland State Firemen's Association, and on various National Committees of the National Fire Protection Association.

Additional information may be obtained from Robert C. Byrus, Director, Fire Service Extension Department, Fire Service Building, University of Maryland, College Park, Maryland.

ENGINEERING EXPERIMENT STATION

WILBERT J. HUFF, *Director.*

The Engineering Experiment Station carries on cooperative investigations with industries of Maryland and Departments of the State and Federal Govern-

ments. A diversity of engineering training, experience, and equipment represented by the faculty and laboratories of the College of Engineering is thus made available for the problems under inquiry.

The staff of the College of Engineering available for research studies will be glad to discuss proposed problems of importance to industry and of public interest where means can be found for the cooperative researches; such studies may be undertaken with the approval of the administration of the University.

COURSE OFFERINGS

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designated by numbers as follows:

1 to 99: courses for undergraduates.

100 to 199: courses for advanced undergraduates and graduates. (Not all courses numbered 100 to 199 may be taken for graduate credit.)

200 to 299: courses for graduates only.

A course with a single number extends through one semester. A course with a double number extends through two semesters.

Courses not otherwise designated are lecture courses. The number of credit hours is shown by the arabic numeral in parentheses after the title of the course.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

AERONAUTICAL ENGINEERING

Professor Sherwood; Associate Professors Corning, Rivello, Shen;
Assistant Professor Winograd; Instructor Maggos

For Advanced Undergraduates and Graduates

Aero. E. 50. Airplane Detail Drafting (1).

First semester. One laboratory period a week. Prerequisite, Dr. 3. Standards of airplane drafting. (Corning.)

Aero. E. 101. Aerodynamics I (3).

Second semester. Three lectures a week. Prerequisite, Phys. 21 and Math. 21. Basic fluid mechanics and aerodynamic theory. (Maggos.)

Aero. E. 102. Aerodynamics II (2).

First Semester. Two lectures a week. Prerequisite, Aero. E. 101. Elements of hydrodynamics and application to engineering problems. (Sherwood.)

Aero. E. 105. Airplane Fabrication Shop (1).

Second semester. One laboratory period a week. Prerequisite, junior standing in Aero. E. (Maggos, Winograd.)

Aero. E. 106. Airplane Fabrication (1).

First semester. One lecture period a week. Prerequisite, Aero. E. 105. Both Aero. 105 and Aero. E. 106 include aircraft sheet metal forming and fabrication. Airframe materials, sheet metal fabrication, machining, fasteners, welding, casting, forging, and costs. (Maggos.)

Aero. E. 107, 108. Airplane Design (4, 4).

First and second semesters. Two lectures and two supervised calculation periods per week. Prerequisites, Aero. 101, Aero. E. 104, and Mech. 52. Aero. E. 102 and Aero. E. 113 to be taken concurrently. Theory and method of airplane design, airplane stability and control, and structural design. Each student designs a jet transport, high speed private airplane or other suitable airplane of student's choice, based upon set specifications. Charts and formulas used in industry are derived and used as basis of design. Optimum airplane is obtained by variation of fundamental parameters. (Corning.)

Aero. E. 109, 110. Aircraft Power Plants (3, 3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisite, M. E. 100. Study of basic operating principles of reciprocating, turbojet, turboprop, ramjet and rocket engines. Specific topics of study include thermodynamic processes, combustion, fuels, carburetion, supercharging, lubrication, and engine performance. Various engine tests are run in the laboratory. (Winograd.)

Aero. E. 111, 112. Aeronautical Laboratory (2, 2).

First and second semesters. One lecture and one laboratory period a week. Prerequisite, Aero. E. 101. To be taken concurrently with Aero. E. 102 and Aero E. 113. Wind tunnel tests. Structure tests. Ballistics tests. Fluid flow analogies. Report writing, original research project. (Staff.)

Aero E. 113, 114. Mechanics of Aircraft Structures.

First and second semesters. First semester, 3 lectures a week. Second semester, 3 lectures and one calculation period a week. Prerequisite, Mech. 52, and Math. 64. Principles and problems of airplane stress analysis and structural design. (Rivello.)

Aero. E. 115. Aerodynamics III (3).

Second semester. Elementary theory of the flow of a compressible gas at subsonic and supersonic speeds. Prerequisite, Aero. E. 102. (Sherwood.)

Aero. E. 117. Aircraft Vibrations (2).

Second semester. Two lectures a week. Prerequisite, Math. 64. Vibration and other dynamic problems occurring in airplane structures. Specific topics of study include the single degree of freedom system, damping, forced vibrations, critical frequency, multiple degrees of freedom, and vibration isolation and absorption. (Staff.)

For Graduates**Aero. E. 200. Advanced Aerodynamics (3).**

First semester. Three lectures a week. Prerequisites, Aero. E. 115, Math. 64. Review of thermodynamics and physical properties of gases. One dimensional flow of a perfect

compressible fluid. Shock waves. Fundamental equations of aerodynamics of compressible fluid. Two-dimensional linearized theory of compressible flow, Prandtl-Glauert Method, Ackeret method, Rayleigh-Janzen method. Hodograph method, Karman-Tsien approximation. Two-dimensional transonic and hypersonic flows. Exact solutions of two dimensional isotropic flow. (Pal.)

Aero. E. 201. Advanced Aerodynamics (3).

Second semester. Three lectures a week. Prerequisite, Aero. E. 200. Linearized theory of three-dimensional potential flow. Exact solution of axially symmetrical potential flow. Method of characteristics. (Two-dimensional and axially symmetrical flow.) Nozzle design; flow in jets; rotational flow of compressible fluid. One-dimensional viscous compressible flow. Laminar boundary layer of compressible fluids. (Pal.)

Aero. E. 202. Advanced Aircraft Structures (3).

First semester. Three lectures a week. Prerequisites, Math. 64 and Aero. E. 113, 114. Introduction to two dimensional theory of elasticity, energy methods, plate theory, theory of elastic instability. (Rivello.)

Aero. E. 203. Advanced Aircraft Structures (3).

Second semester. Three lectures a week. Prerequisites, Aero. E. 202. Aerodynamic heating of structures, thermal stresses, creep, creep bending and buckling, visco-elastic theory. (Rivello.)

Aero. E. 204. Aircraft Dynamics (3).

First semester. Prerequisites, Math. 64 and Aero. E. 114. Dynamics of a rigid body and applications to airplane dynamics. Generalized coordinates and Lagrange's equations. Vibrations of simple systems. Dynamics of elastically connected masses. Influence coefficients. Mode shapes and principal oscillations. Transient stresses in an elastic structure. (Shen.)

Aero. E. 205. Aircraft Dynamics (3).

Second semester. Prerequisites, Math. 64 and Aero. E. 101. Wing divergence and aileron reversal. Theory of two dimensional oscillating airfoil. Flutter problems. Corrections for finite span. Compressibility effects. (Shen.)

Aero. E. 206, 207. Advanced Aircraft Power Plants (3, 3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisites, M. E. 100; Aero. E. 109, 110. Special problems of thermodynamics and dynamics of aircraft power plants; jet and rocket engines. Research in power plant laboratory.

Aero. E. 208. Advanced Aircraft Design (3).

First semester. Three lectures a week. Prerequisites, Aero. E. 101, 102, 113, 114. Theory and method of airplane design. Each student designs either a jet transport upon assigned specifications or any other airplane that he desires. Special emphasis is placed on the derivations and theoretical background of the formulas and experimental data used. (Corning.)

Aero. E. 209. Stability and Control (3).

Second semester. Three lectures a week. Prerequisites, Aero. E. 101, 102. Dynamic longitudinal and lateral stability and control, preceded by a brief introduction to static stability. (Corning.)

Aero. E. 210. Aerodynamic Theory (3).

First semester. Prerequisites, Aero. E. 101, Math. 64. Fundamental equations in fluid mechanics. Irrotational motion. Circulation theory of lift. Thin airfoil theory. Lifting line theory. Wind tunnel corrections. Propellor theories. Linearized equations in compressible flow. (Shen.)

Aero. E. 211. The Design and Use of Wind Tunnels (Supersonic) (3).

First or second semesters. The design and use of wind tunnels (supersonic). Review of basic aerodynamics and thermodynamics. Problems in supersonic tunnel design such as pumping, power supply, condensation and driers. Equipment for measuring results, including balances, manometer, optical instruments, such as schlieren, spark illumination and X-ray equipment. Investigations in supersonic wind tunnels are described with special reference to similitude required for conversion to full scale. (Kurzweg.)

Aero. E. 212, 213. Bodies at Supersonic Speeds (3, 3).

First and second semesters. Prerequisites, degree in Aero. E. or M. E. or equivalent, and consent of instructor. Brief review of gasdynamics, drag, lift, stability, and damping on a body in a supersonic stream. Special aerodynamic problems in the design of supersonic missiles. Methods for obtaining accurate test data on the aerodynamic characteristics of supersonic missiles. (Kurzweg.)

Aero. E. 214. Seminar.

(Credit in accordance with work outlined by Aero. Engr. staff.) First and second semesters. Prerequisite, graduate standing.

Aero. E. 215. Research.

(Credit in accordance with work outlined by Aero. Engr. staff.) First and second semesters. Prerequisite, graduate standing.

Aero. E. 216. Selected Aeroballistics Problems (3).

First semester. Physical processes and aerothermodynamic laws connected with the flow around supersonic missiles. Boundary layer problems and the transfer of heat and mass. Prerequisite, degree in Aero. E. or M. E. or equivalent and consent of instructor. (Kurzweg.)

Aero. E. 217. Aerodynamics of Viscous Fluids (3).

Second semester. Fundamental concepts. Navier-Stokes' equations. Simple exact solutions. Laminar boundary layer theory. Pohlhausen method. Turbulent boundary layer; mixing length and similarity theories. Boundary layer in compressible flow. Prerequisite, Aero. E. 101, Math. 64. (Shen.)

Aero. E. 218. Selected Topics in Aerodynamics (3).

First or second semester. Prerequisites, Aero. E. 210, 115. Topics of current interest and recent advances in the field of aerodynamics. (Shen.)

CHEMICAL ENGINEERING

Professors Huff, Bonney, Cooper, Schroeder, Pennington;
Assistant Professor MacLaughlin; Instructors Duffey, Reid, Costas.

Ch. E. 15. Stoichiometry and Chemical Engineering Control (4).

Second semester. Two lectures, 2 3-hour laboratories a week. Prerequisite, Chem. 19. Introductory laboratory studies of widely used materials, methods and computations encountered in the examination and interpretation of chemical engineering operations. Laboratory data are employed in heat and material balances of chemical processes. Laboratory fee, \$8.00 per semester. (Reid and Staff.)

For Advanced Undergraduates and Graduates**Ch. E. 103, f, s. Elements of Chemical Engineering (3, 3).**

First and second semesters. Three hours a week. Prerequisites, Chem. 3; Math. 21; Phys. 21. Theoretical discussion of underlying philosophy and methods in chemical engineering and elementary treatment of important operations involving fluid flow, heat flow, evaporation, humidity and air conditioning, distillation, absorption, extraction, and filtration. Illustrated by problems and consideration of typical processes. (Huff.)

Ch. E. 104. Chemical Engineering Seminar (1, 1).

One hour a week. Students prepare reports on current problems in Chemical Engineering and participate in the discussion of such reports. The content of this course is constantly changing so a student may receive a number of credits by re-registration. (Reid.)

Ch. E. 105, f, s. Advanced Unit Operations (5, 5).

Two lectures and one all-day laboratory period a week. Prerequisites, Ch. E. 103; Chem. 189, 190. Advanced theoretical treatment of basic chemical engineering operations. Study and laboratory operation of small scale semi-commercial type equipment. A comprehensive problem involving theory and laboratory operations is included to illustrate the development of a plant design requiring the utilization of a number of fundamental topics. Laboratory fee, \$8.00 per semester. (Bonney and Staff.)

Ch. E. 106, f, s. Minor Problems (6, 6).

Laboratory fee, \$8.00 per semester.

Ch. E. 107. Fuels and Their Utilization (3).

Second semester. Three hours a week. Prerequisites, Ch. E. 103, or permission of Department of Chemical Engineering. A study of the sources of solid, liquid, and gaseous fuels, their economic conversion, distribution, and utilization. Problems. (Huff.)

Ch. E. 109, f, s. Chemical Engineering Thermodynamics (3, 3).

Three hours a week. Prerequisites, Chem. 187, 189; Ch. E. 103, or permission of instructor. A study of the application of the principles of engineering and chemical thermodynamics to some industrial problems encountered in the practice of chemical engineering. (Cooper.)

Ch. E. 112, 113. Industrial Chemical Technology (3, 3).

Three hours a week. Prerequisites, Ch. E. 103, or simultaneous registration therein, or permission of the Department of Chemical Engineering. A study of the major chemical processes and industries combined with quantitative analysis of process requirements and yields. Plant inspection, trips, reports, and problems. (Schroeder.)

Ch. E. 114. Applications of Electrochemistry (4).

First semester. Three lecture hours and three laboratory hours per week. Prerequisite, consent of instructor. Laboratory fee, \$8.00.

Ch. E. 116. Applications of Advanced Mathematical Analysis in Chemical Engineering (3).

First semester. Three lectures a week. Prerequisites, Math. 20, 21 and Ch. E. 103. A study of methods for analysis and solution of chemical engineering problems by use of differential equations. Graphical, numerical and statistical methods and approximations by use of infinite series are covered. (Reid.)

Ch. E. 119. Empirical Equations and Nomography (3).

Second semester. Three hours a week. Prerequisite, consent of instructor.

Ch. E. 123, 124. Elements of Plant Design (3, 3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisites, Ch. E. 103, f, s; Ch. E. 110 (or Ch. E. 116); Chem. 189. The solution of typical problems encountered in the design of chemical engineering plants. (Cooper.)

Ch. E. 131. Chemical Engineering Economics (2).

Second semester, two lectures a week. Prerequisites, simultaneous registration in or completion of Ch. E. 108 f, s (or Ch. E. 112, 113), 109 f, s, and 123, or permission of instructor. Economic evaluation of chemical processes. Determination of investment and operating costs for chemical engineering plants. Effect of risk and taxation on profits from such plants. (Schroeder.)

Ch. E. 140. Introduction to Nuclear Technology (2).

Two lectures a week, first semester. Required of Juniors in Chemical and Electrical Engineering and Seniors in Chemical Engineering, Metallurgical option. Engineering description of the different parts of the atomic energy complex, including mining and refining of ores, isotopic and chemical separations and nuclear reactor operation. The novel chemical engineering techniques employed are discussed. The emphasis is on the nuclear reactor. This is an orientation course for those only generally interested in applied atomic energy. (Duffey.)

Ch. E. 142. Environmental Consideration of Nuclear Engineering (3).

Three lectures a week, first semester. Prerequisite, permission of instructor. Engineering analysis of protection of the public and the environment from the hazards of nuclear energy operations. Emphasis is on the handling and disposal of gaseous, liquid and solid radioactive wastes. Meteorological, hydrological and geological phases are included. Typical problems encountered from mining of ores through nuclear reactor operations and chemical separations are considered. Legislative and economic factors, site selection, plant design and operation as related to the environment are discussed.

Ch. E. 145. Applications of Differential Equations and Statistics in Chemical Engineering (3).

Second semester. One lecture, two laboratory periods per week. Prerequisites, Ch. E. 103, f, s, Ch. E. 110 (or Ch. E. 116) or permission of the instructor.

For Graduates

Ch. E. 201. Graduate Unit Operations (5).

First semester. One-hour conference, three or more laboratory periods a week. Prerequisite, permission of the Department of Chemical Engineering. Advanced theo-

retical treatment of typical unit operations in chemical engineering. Problems. Laboratory operation of small scale semi-commercial units with supplemental reading, conferences and reports. Laboratory fee, \$8.00. (Bonney.)

Ch. E. 202. Gas Analysis (3).

One lecture and two laboratory periods a week. One semester. Prerequisite, permission of Department of Chemical Engineering. Quantitative determination of common gases, fuel gases, gaseous vapors, and important gaseous impurities. Problems. Laboratory fee, \$8.00. (Bonney.)

Ch. E. 203. Graduate Seminar (1).

One hour a week. Required of all graduate students in Chemical Engineering. The content of this course is constantly changing so a student may receive a number of credits by re-registration. Students prepare reports on current problems in chemical engineering and participate in the discussion of such reports. Also given at Army Chemical Center. (Staff.)

Ch. E. 205. Research in Chemical Engineering.

Credit hours to be arranged. The investigation of special problems and the preparation of a thesis in partial fulfillment of the requirements of an advanced degree. Laboratory fee, \$8.00 per semester. (Huff, Bonney, Cooper and Schroeder.)

Ch. E. 207, f, s. Advanced Plant Design Studies (3, 3).

Three conference hours a week. Prerequisite, permission of Department of Chemical Engineering. Also given at Army Chemical Center. (Huff, Cooper.)

Ch. E. 209, f, s. Plant Design Studies Laboratory (3, 3).

Three laboratory periods a week. Prerequisite, permission of Department of Chemical Engineering. Laboratory fee, \$8.00 per semester. (Bonney.)

Ch. E. 210, f, s. Gaseous Fuels (2, 2).

Two hours a week. Prerequisite, permission of Department of Chemical Engineering. An advanced treatment of some of the underlying scientific principles involved in the production, transmission and utilization of gaseous fuels. Problems in design and selection of equipment. (Huff.)

Ch. E. 214. Corrosion and Metal Protection (4).

Second semester. Four lecture hours a week. Prerequisites, Ch. E. 114 or Chem. 189 or Chem. 190 or consent of the instructor. The subjects to be covered include: Theories of corrosion of ferrous and non-ferrous metals, passive films, corrosion inhibitors, metal cleaning, stress corrosion, corrosive chemicals, electrolytic protection, restoration of ancient bronzes, organic coatings, metal coloring, parkerizing, hot dip coatings, plated coatings, and selection of engineering materials. Class demonstrations will illustrate the subject matter. Due to the diversity of subjects and scattered sources, considerable outside reading will be necessary. Also given at Army Chemical Center.

Ch. E. 216. Unit Processes of Organic Technology (3).

Second semester. Three lectures a week. Prerequisite, permission of the Department. This course coordinates the study of fundamental principles of organic synthesis with the requirements of the industrial plant.

Ch. E. 217. Unit Processes of Organic Technology Laboratory (2).

Second semester. Two or more laboratory periods a week. Prerequisite, permission of the Department. Pilot plant operation of processes such as halogenation, hydration, nitration, oxidation, reduction and sulfonation. Laboratory fee, \$8.00 per semester.

(Bonney.)

Ch. E. 240, 241. Advanced Heat and Mass Transfer (2, 2).

First and second semesters. Elective of graduate students in Chemical Engineering and others. Prerequisite, permission of the Department. (Also given at Camp Detrick and the Army Chemical Center.) The technical and scientific elements of the mathematical theory of heat and mass transfer.

Ch. E. 250. Chemical Engineering Practice (6).

Four hours conference and forty hours per week of work in laboratory and plant for eight weeks. Prerequisite, permission of the Department. (Offered at the Army Chemical Center only.)

Ch. E. 270. Plastics Technology (3).

First semester. Two lectures and one laboratory a week. Prerequisite, permission of the Department. Laboratory fee, \$8.00 per semester.

Ch. E. 280, 281. Graduate Chemical Engineering Thermodynamics (3, 3).

First and second semesters. Prerequisites, Ch. E. 109, f, s; Ch. E 110 (or Ch. E. 116); or permission of instructor. Advanced studies of the applications of the principles of engineering and chemical thermodynamics to some industrial problems encountered in the practice of chemical engineering.

Ch. E. 290. Chemical Engineering Process Kinetics (3).

First semester. Three lectures a week. Prerequisite, permission of instructor. Methods of application of kinetic data to the design of reactors for industrially important processes are illustrated by solution of typical problems. Treatments for both homogeneous and heterogeneous reactions are given.

(Reid.)

Ch. E. 302, 303. Nuclear Reactor Engineering (3, 3).

First and second semesters. Three lectures a week. Prerequisite, permission of instructor. Introduction to the engineering problems of the design, construction and operation of typical nuclear reactors, including general design, nuclear reactor theory, materials of construction, heat transfer, control, etc. Emphasis is toward commercial nuclear reactors.

(Duffey.)

Ch. E. 311. Nuclear Separation Engineering (2).

Second semester. Two lectures a week. Prerequisite, permission of instructors. Application of chemical engineering to the chemical and isotopic separations necessary for nuclear reactor operation. These separations include (1) processing of uranium, thorium and other ores, (2) chemical separation of plutonium, uranium, fission products and other elements from materials irradiated in nuclear reactors, (3) treatment and disposal of radioactive wastes, (4) isotopic separation of U235 and heavy water.

(Duffey, Cooper.)

Ch. E. 315. Industrial Applications of Nuclear Reactors (2).

Second semester. Two lectures a week. Prerequisite, permission of instructors. An engineering survey of the current applications and those under development. Included are such uses of radiation as producing valuable radioactive and stable isotopes, synthesizing chemicals, and preserving foods. The changes in the design and operation of power -- only nuclear-reactor complexes required for such additional applications are discussed.

(Duffey, Cooper.)

METALLURGICAL OPTION**Met. 23. Nonferrous and Ferrous Metallurgy (4).**

Second semester. Four lectures and demonstrations a week. Prerequisite, Chem. 3. The methods of extraction of the important metals and their fabrication.

Met. 64, 66. Physical Metallurgy (5, 5).

First and second semesters. Three lectures, two laboratories a week. Prerequisites, Met. 23; Math. 21; Phy. 21. Principles of Crystallography as applied to metals; X-ray diffraction; physical metallurgy of appropriate systems, including optical and X-ray metallography; constitution and properties of alloy systems; phase transformations and diffusion theory. Laboratory fee, \$8.00 per semester.

Met. 68, 70. Mechanical Properties of Metals (3, 3).

First and second semesters. Two lectures and one laboratory a week. Prerequisites, same as for Met. 64, 66. Introduction to metal forming operations, ingot casting, forging, rolling; powder metallurgy; metal tests, tensile, impact, creep, fatigue, hardness. Laboratory fee, \$8.00.

For Advanced Undergraduates and Graduates**Met. 104. Senior Metallurgical Seminar (1, 1).**

One hour a week. Students prepare reports on current problems in Metallurgy and participate in the discussion of such reports. The content of this course is constantly changing so a student may receive a number of credits by re-registration.

Met. 164, 166. Thermodynamics of Metallurgical Processes (3, 3).

First and second semesters, three lectures a week. Prerequisites, Chem. 187, 189; Chem. 188, 190. The application of the principles of thermodynamics to metallurgical systems with emphasis on steel making; laws of chemical reactions; materials and reactions in steel making processes; applications of theory to steel making; applications of theory to selected non-ferrous systems.

Met. 168, 170. Metallurgical Investigations (2, 4).

First semester, two three-hour laboratory periods a week; second semester, three lectures and one three hour laboratory period a week. Prerequisites, concurrent registration in or completion of Met. 182, 183. A study of the basic metals industry in which typical metallurgical processes in plant installations are considered in some detail. Class and individual assignments involving laboratory work and literature reviews. Laboratory fee, \$8.00 per semester.

Met. 182, 183. Optical and X-ray Metallography (4, 4).

First and second semesters. Three lectures and one laboratory period a week. Prerequisites, Met. 64, 66; Met. 68, 70; or permission of instructor. The application at an advanced level of the principles of metallography, with emphasis on the correlation of associated test procedures; constitution of metal systems and phase transformations; alloy steels; hardenability and tempering of quenched steels. Laboratory fee, \$8.00 per semester.

Met. 188, 189. Alloy Steels I, II (2, 3).

First and second semesters. Two lectures per week. Prerequisites, graduate or undergraduate standing. (Met. 188 is not prerequisite to Met. 189.) Recent advances in the physical metallurgy of steel; ferrite, cementite, and austenite; the isothermal transformation of austenite; decomposition of austenite by continuous cooling; the effects of various metallurgical treatments on the mechanical properties of steels. The properties of quenched and tempered steels; importance of hardenability in engineering applications; calculation of hardenability; variables affecting hardenability; intensifiers; effects of alloying elements on the mechanical properties of steels; efficient use of alloying elements in steel. (Note: To be offered at off-campus naval installations as determined by departmental and registration requirements.)

For Graduates**Met. 205. Research in Metallurgy.**

Credit hours to be arranged. The investigation of special problems and the preparation of a thesis in partial fulfillment of the requirements of an advanced degree. Laboratory fee, \$8.00 per semester.

Met. 220, 221. Solid Phase Reactions (3, 3).

First and second semesters. Three lectures a week. Prerequisites, Chem. 187, 189; Chem. 188, 190; Met. 182, 183; or permission of the instructor. The application of thermodynamics to the study of phase equilibria and transformations in metals; mechanism and rate determining factors in solid phase reactions in metals; order-disorder phenomena, diffusion processes, nucleation theory, precipitation from solid solution, eutectoid decomposition.

Met. 224, 225. Advanced X-ray Metallography (3, 3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisites, Math. 114, 115; Met. 182, 183. Analysis of crystallography or martensite reactions, and transformations in general; analysis of complex diffracting systems. Laboratory fee, \$8.00 per semester.

Met. 228. Seminar in Metallurgy (1).

First and second semesters. One meeting a week. Required of graduate students in metallurgical curriculum. Survey of metals literature, and oral presentation of prepared reports. The content of this course is constantly changing, so a student may receive a number of credits by re-registration.

Met. 229. Gases in Metals (2).

Second semester. Two lectures per week. Prerequisites, Met. 182, 183, or permission of the instructor. A consideration of the behavior of gases in metals with emphasis on the action of hydrogen in solid metals.

Met. 230, 231. Mechanical Metallurgy (3, 3).

First and second semesters. Three lectures a week. Prerequisites, Math. 114, 115; Met. 182, 183. Theory of plastic flow and rupture of polycrystalline metals; the influence of combined stresses, rate of deformation and temperature variation on the flow and rupture of metals. Flow and fracture in single crystals; theoretical crystal plasticity, theory of failure, recovery, recrystallization, and texture formation.

Met. 232, 233. Advanced Physical Metallurgy (3, 3).

First and second semesters. Three lectures a week. Required of graduate students in metallurgical curriculum. The principles of X-ray metallography; the atomic theory of metals; magnetic materials; phase equilibria; review of important binary and ternary systems; diffusion and transformations in the solid state. (Offered at the Navy Department.)

CIVIL ENGINEERING

Professors Steinberg, Allen, Otts; Lecturer Walker; Associate Professors Barber, Blackburn, Cournyn, Gohr, Wedding; Assistant Professor Piper; Instructors Gray, Luce.

C. E. 50. Fluid Mechanics (3).

First or second semesters. Two lectures and one laboratory period a week. Prerequisite, Mech. 1. Required of juniors in civil and electrical engineering. A rational and experimental study of fluids at rest and in motion with special emphasis on water and oils. Principles of viscous and turbulent flow through pipes, orifices, nozzles and metering devices; impulse and momentum concepts. Flow through closed conduits and open channels; divided flow, pumps, turbines, dimensional analysis; laws of similarity.

(Cournyn.)

For Advanced Undergraduates and Graduates**C. E. 100. Theory of Structures (4).**

Second semester. Three lectures and one laboratory period a week. Prerequisite, Mech. 50. Analytic and graphical determination of dead and live load stresses in beams and framed structures; influence lines; lateral bracing and portals; elements of slope and deflection.

(Piper.)

C. E. 101. Soil Mechanics (3).

First semester. Two lectures and one laboratory period a week. Prerequisites, Mech. 50 and 53. An introductory study of the properties and behavior of soils as engineering materials. Soil physics, soil mechanics, and applications to engineering.

(Barber.)

C. E. 102. Structural Design (6).

First semester. Five lectures and one laboratory period a week. Prerequisite, C. E. 100. Design and detailing of wood and metal structural members and their connections; wind stresses in building frames; structural framework.

(Allen.)

C. E. 103. Concrete Design (6).

Second semester. Five lectures and one laboratory period a week. Prerequisite,

C. E. 100. Design and detailing of plain and reinforced concrete structures, applications of slope-deflection and moment distribution theories; rigid frames. (Allen.)

C. E. 104. Water Supply (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, C. E. 50 and senior standing. Requirements of a municipal water supply—design, operation, maintenance, and administration. (Otts.)

C. E. 105. Sewerage (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, C. E. 50 and senior standing. The collection, treatment and disposal of sewage. (Otts.)

C. E. 106. Elements of Highways (3).

Second semester. Two lectures and one laboratory period a week. Prerequisite, C. E. 101. Location, design, construction, and maintenance of roads and pavements. Laboratory problems and field inspection trips. (Barber.)

C. E. 107. Statically Indeterminate Structures (3).

Two lectures and one laboratory period a week, first and second semesters. Prerequisite, C. E. 100, or equivalent. A basic course in statically indeterminate structures. (Allen, Piper.)

C. E. 108. Photogrammetry (3).

First or second semester. Two lectures and one laboratory period a week. Prerequisite, Surv. 50. The fundamental principles of terrestrial and aerial photographic surveying and their application to principles of map making. Laboratory exercises in the use of the stereoscope, stereocomparagraph, contour finder, interpretometer, and the vertical sketchmaster. (Gohr.)

C. E. 109. Hydrology (3).

First or second semester. Two lectures and one laboratory period a week. Prerequisite, C. E. 50. A study of the factors governing the supply of ground water and the flow of streams and their relations to water power, water supply, drainage and sanitary engineering. (Cournyn.)

For Graduates

C. E. 200. Advanced Properties of Materials (3).

First or second semester. Prerequisite, Mech. 53 or equivalent. A critical study of elastic and plastic properties, flow of materials, resistance to failure by fracture, impact, and corrosion, the theories of failure. Assigned reading from current literature. (Wedding.)

C. E. 201. Advanced Strength of Materials (3).

First or second semester. Prerequisite, Mech. 50, or equivalent. Special problems in engineering stress analysis. Limitations of flexure and torsion formulas, unsymmetrical bending, curved beams, combined stresses, thin tubes, thick-walled cylinders and flat plates. (Wedding.)

C. E. 202. Experimental Stress Analysis (3).

First or second semester. Prerequisite, C. E. 201 or permission of instructor. An introduction to the theory of elasticity. Applications of this theory to experimental methods of stress analysis with particular reference to the electric strain gauge, strain rosettes, photoelastic methods, brittle lacquer technique and various analogy methods.

(Wedding.)

C. E. 203. Soil Mechanics (3).

First or second semester. Prerequisite, C. E. 101, or equivalent. A detailed study of the properties of engineering soils. Assigned reading from current literature.

(Barber.)

C. E. 204. Advanced Foundations (3).

First or second semester. Prerequisites, C. E. 101, 102 and 103, or equivalent. A detailed study of types of foundations. Design and construction to meet varying soil conditions.

(Barber.)

C. E. 205. Highway Engineering (3).

First or second semester. Prerequisite, C. E. 106, or equivalent. An intensive course in the location, design, and construction of highways.

(Barber.)

C. E. 206. Theory of Concrete Mixtures (3, 3).

First and second semesters. Prerequisite, Mech. 53, or equivalent. A thorough review of the methods for the design of concrete mixtures, followed by a study of factors affecting the properties of the resulting concrete. This course is intended as a background for work in the field of concrete, concrete aggregates, or reinforced concrete. The second semester of this course is open only to students who are majoring in concrete.

(Walker, Wedding.)

C. E. 207. Advanced Structural Analysis (3).

First or second semester. Prerequisites, C. E. 107 or equivalent. Classical and modern methods of analysis of the more advanced statically indeterminate structures.

(Staff.)

C. E. 208. Advanced Sanitation (3).

First or second semester. A detailed study of environment and its relation to disease, covering malaria and its control; rodent control; food sanitation; collection and disposal of municipal refuse; housing sanitation, including plumbing, rat-proofing, etc.; rural water supply and excreta disposal; sanitary inspection procedure.

(Otts.)

C. E. 209. Advanced Water Supply (3).

First or second semester. Prerequisite, C. E. 104 or equivalent. A detailed study of the problems of water supply including recent developments in the treatment of water.

(Otts.)

C. E. 210. Advanced Sewerage (3).

First or second semester. Prerequisite, C. E. 105 or equivalent. A detailed study of the problems of sewerage, including recent developments in the treatment of sewage.

(Otts.)

C. E. 211. Sanitary Engineering Design (3).

First or second semester. Prerequisite, C. E. 104, 105 or equivalent. Practical problems in the design of sewer systems and appurtenances; sewage treatment plants; water collection and distribution systems; water purification plants. (Otts.)

C. E. 212. Research.

Credit in accordance with work done. First and second semesters. (Staff.)

C. E. 213. Seminar.

First or second semester. Credit in accordance with work outlined by the civil engineering staff. Prerequisite, graduate standing in civil engineering. (Staff.)

C. E. 214. Sanitary Engineering Laboratory (3).

First or second semester. Prerequisites, C. E. 104 and C. E. 105, or equivalent. Lectures, conferences, assigned readings, and laboratory exercises in the technique and principles involved in the physical, bacteriological and chemical tests used in water analysis. (Otts.)

C. E. 215. Sanitary Engineering Laboratory (3).

First or second semester. Prerequisites, C. E. 104, and C. E. 105, or equivalent. Lectures, conferences, assigned readings, and laboratory exercises in the techniques and principles involved in the physical, bacteriological and chemical tests used in sewage and industrial waste analysis. (Otts.)

C. E. 216. Hydraulic Engineering (3).

First or second semester. Prerequisite, C. E. 50, or equivalent. Water power and flood control. Analysis of the principal features of a water power project with special reference to reservoir, waterway, dam, plant accessories, and power house equipment. Complete report on a water power project required, including costs and power valuation. (Cournyn.)

C. E. 217. Hydraulic Machinery (3).

First or second semester. Prerequisite, C. E. 50, or equivalent. Principles of design, selection and operation of hydraulic pumps, turbines and other hydraulic machinery. (Cournyn.)

C. E. 218. Advanced Structural Design (3).

First or second semester. Prerequisites, C. E. 102, 103 or equivalent. Design problems encountered in rigid frames under vertical load. Design problems encountered in frames under horizontal load, with particular reference to wind loads. Design of radio towers and of industrial buildings. (Staff.)

C. E. 219. Sanitary Engineering Design (3).

First or second semester. Prerequisite, C. E. 104, 105 or equivalent. Selected problems in the design of structure related to the operation of water supply and sewerage systems and industrial waste treatment plants. (Otts.)

C. E. 220. Soil Mechanics Laboratory (3).

First or second semester. Prerequisite, C. E. 101 or equivalent. Detailed study and practice of standard and special laboratory test methods. Construction and operation of models. Application of tests to design and construction projects and research problems. (Barber.)

DRAWING**Dr. 1, 2. Engineering Drawing (2, 2).**

First and second semesters. Two laboratories a week. Required of engineering freshmen. Lettering, use of instruments, orthographic projection, auxiliary views, revolution, sections, pictorial representation, dimensioning, fasteners, technical sketching, and working drawings. (Wockenfuss and Staff.)

Dr. 3. Advanced Engineering Drawing (2).

First semester. Two laboratories a week. Required of juniors in Civil Engineering, and sophomores in Aeronautical and Mechanical Engineering. Prerequisites, Dr. 1 and Dr. 2. Descriptive Geometry with applications to drafting room problems. Developments, intersections, transition pieces and perspective. (Wockenfuss and Staff.)

ELECTRICAL ENGINEERING

Professors Corcoran, Reed, and Weber; Associate Professors Hodgins, Wagner, Small, and Price; Assistant Professors Hochuli and Simons; Instructor Lundquist; Lecturers Ahrendt, Freeman, Vanderslice, and Schulman.

E. E. 1. Basic Electrical Engineering (4).

Second semester. Three lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisites, Math. 21 and Phys. 21 or concurrent registration. Required of sophomores in electrical engineering. Basic concepts of electric potential, current, power, and energy; d-c circuit analysis by the mesh-current and nodal methods; network theorems; magnetic field concepts; magnetic effects of engineering importance. (Corcoran, Simons.)

For Advanced Undergraduates**E. E. 50. Fundamentals of Electrical Engineering (3).**

First semester. Two lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisites, Math. 21 and Phys. 21. Required of juniors in civil engineering. Principles of direct and alternating currents; power circuits and distribution systems; direct and alternating current machines and applications; operating characteristics of electrical machines and transformers. (Hodgins, Hochuli.)

E. E. 51, 52. Principles of Electrical Engineering (4, 4).

First and second semesters. Three lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisites, Math. 21 and Phys. 21. Required of juniors in aeronautical and mechanical engineering, and seniors in chemical engineering. A study of

elementary direct-current and alternating-current circuits, polyphase circuits; magnetic circuits. Principles of operation of direct and alternating current machinery and transformers. Brief study of vacuum tubes operated as rectifiers and amplifiers.

(Small, Lundquist.)

E. E. 60. Electricity and Magnetism (3).

First semester. Prerequisites, Math. 21, Phys. 21, and E. E. 1. Required of juniors in electrical engineering. Electromagnetism as applied to electrical engineering; electric field theory with emphasis on capacitance calculations, magnetic field theory with emphasis on inductance calculations; boundary layer phenomena.

(Reed, Weber.)

E. E. 65. Direct-Current Machinery (3).

Second semester. Two lectures and one laboratory period a week. Laboratory fee, \$1.00. Prerequisites, Math. 21, Phys. 21, and E. E. 1. Required of juniors in electrical engineering. Construction, theory of operation, and performance characteristics of direct-current generators, motors, and control apparatus. Experiments on the operation and characteristics of direct-current generators and motors.

(Hodgins, Hochuli.)

For Advanced Undergraduates and Graduates

E. E. 100. Alternating-Current Circuits (4).

First semester. Three lectures and one laboratory period a week. Laboratory fee, \$1.00. Prerequisites, Math. 21, Phys. 21, and E. E. 1. Required of juniors in electrical engineering. Single- and polyphase-circuit analysis under sinusoidal and non-sinusoidal conditions of operation. Mesh-current and nodal methods of analysis. Harmonic analysis by the Fourier series method. Theory and design of tuned coupled circuits.

(Price, Simons.)

E. E. 101. Engineering Electronics (5).

Second semester. Four lectures and one laboratory period a week. Laboratory fee, \$1.00. Prerequisite, E. E. 100. Required of juniors in electrical engineering. Theory and applications of electron tubes and associated circuits with emphasis on equivalent circuit analysis of audio amplifiers, reactance tubes, feedback amplifiers, oscillators, and detectors.

(Price, Simons.)

E. E. 102. Alternating-Current Machinery (4).

First semester. Three lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisites, E. E. 65 and E. E. 100. Required of seniors in electrical engineering. The operating principles of alternating-current machinery considered from theoretical, design, and laboratory points of view. Synchronous generators and motors; single and polyphase transformers; three-phase induction generators and motors; single-phase induction motors; rotary converters and mercury-arc rectifiers.

(Hodgins.)

E. E. 104. Communication Circuits (4).

Second semester. Four lectures a week. Prerequisites, E. E. 60 and E. E. 100. Required of juniors in electrical engineering. Long-line theory applied to audio-frequency and ultra-high-frequency systems. Elements of filter theory; impedance matching; Maxwell's equations in rectangular and cylindrical coordinates and in scalar notation; elements of rectangular wave-guide theory.

(Reed, Simons.)

E. E. 105, 106. Radio Engineering (4, 4).

First and second semesters. Three lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisite, E. E. 101. E. E. 105 is required of seniors in electrical engineering. Characteristics of radio-frequency circuits including the design of tuned coupled circuits and Class C amplifiers. Amplification, oscillation, modulation, and detection with particular emphasis on radio-frequency amplification and broadcast-range reception. Elements of wave propagation and antenna systems. (Wagner, Price.)

E. E. 107. Electrical Measurements (4).

Second semester. Three lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisites, E. E. 100 and Math. 64. Measurement and calibration techniques employing ballistic galvanometers, potentiometers, bridges, electromagnetic and cathode-ray oscillographs, watt-hour meters, and electronic instruments. (Small.)

E. E. 108. Electric Transients (3).

First semester. Three lectures a week. Prerequisite, E. E. 101, Math. 64. Required of seniors in electrical engineering. Current, voltage, and power transients in lumped-parameter networks. Introduction and utilization of Laplace transforms. (Reed, Price.)

E. E. 109. Pulse Techniques (3).

Second semester. Three lectures a week. Prerequisite, E. E. 105. Required of seniors in electrical engineering. Generation, shaping, amplification, and delay of non-sinusoidal wave-forms. Circuit design techniques and application to radar, television, and computers. (Schulman.)

E. E. 110. Transistor Circuitry (3).

Second semester. Three lectures a week. Prerequisite, E. E. 101. P-n junction theory; point-contact and junction type transistors; transistor parameters; equivalent circuits; typical transistor amplifier and oscillator circuits. (Corcoran, Reed.)

E. E. 114. Applied Electronics (3).

First or second semester. Three lectures a week. Prerequisite, E. E. 101. Detectors and discriminators; gas tube characteristics and associated circuits; photoelectric tubes and associated circuits; rectifiers and regulators; vacuum tube instruments. (Staff.)

E. E. 115. Feedback Control Systems (3).

Second semester. Two lectures and one laboratory period a week. Laboratory fee, \$4.00. Prerequisites, E. E. 101 and E. E. 108. Servomechanisms and automatic regulators; investigations of electric, hydraulic, pneumatic, and mechanical elements; analysis of system differential equations and development of transfer functions; stability criteria. (Price.)

E. E. 116. Alternating-Current Machinery Design (3).

Second semester. Two lectures and one calculation period a week. Prerequisite, E. E. 102. Derivation of theoretical design equations; practical design consideration; numerical design of transformers, synchronous generators and induction motors. (Reed.)

E. E. 117. Power Transmission and Distribution (3).

First semester. Three lectures a week. Prerequisite, concurrent registration in E. E. 102. Inductance and capacitance calculations of polyphase transmission lines on a per wire basis; effective resistance calculations and depth-of-penetration formula; generalized parameters of four-terminal networks and long-line theory applied to power distribution systems; use of transmission line charts. (Reed.)

E. E. 120. Maxwell's Equations (3).

Second semester. Three lectures a week. Prerequisites, Math. 64, senior standing in electrical engineering or physics. The basic mathematical theory of electromagnetic wave propagation employing Maxwell's equations in scalar and vector form and in generalized coordinates; application to wave-guide transmission. (Reed.)

E. E. 160, 161. Vacuum Tubes (3, 3).

First and second semesters. Three lectures a week. Prerequisites, Math. 64, senior standing in electrical engineering or physics. Electron emission; laws of electron motion; space charge effects; noise in vacuum tubes; magnetic lenses; klystrons; magnetrons; photoelectric tubes; other special-purpose tubes. (Weber.)

For Graduates**E. E. 200. Symmetrical Compounds (3).**

First semester. Three lectures a week. Prerequisite, E. E. 102. Application of the method of symmetrical components to synchronous generators, transmission lines, transformers, static loads possessing mutual coupling, and induction motor loads. Methods of calculating positive, negative, and zero sequence reactances of transmission lines. Complete network solutions in terms of symmetrical components and comparison of these solutions with those obtained by classical methods. Methods of measuring positive, negative, and zero sequence reactances of synchronous generators. (Reed.)

E. E. 201. Electromagnetic Theory (3).

Second semester. Three lectures a week. Prerequisite, E. E. 120 or E. E. 215. Required of M.S. degree candidates in electrical engineering. Theoretical analysis and engineering applications of Laplace's, Poisson's and Maxwell's equations. (Weber.)

E. E. 202, 203. Transients in Linear Systems (3, 3).

First and second semesters. Three lectures a week. Prerequisite, undergraduate major in electrical or mechanical engineering or physics. Required of M.S. degree candidates in electrical engineering. Operational circuit analysis; the Fourier integral; transient analysis of electrical and mechanical systems and vacuum tube circuits by the Laplace transform method. (Wagner.)

E. E. 204. Advanced Circuit Analysis (3).

First semester. Three lectures a week. Prerequisite, undergraduate major in electrical engineering or physics. The mathematics of circuit analysis, including determinants, matrices, complex variable, and the Fourier integral. (Reed, Price.)

E. E. 206, 207. Microwave Engineering (3, 3).

First and second semesters. Three lectures a week first semester and two lectures and one laboratory period a week second semester. Laboratory fee, E. E. 207, second

semester, \$4.00. Prerequisite, E. E. 201. Basic considerations in solving field problems by differential equations; circuit concepts and their validity at high frequency; propagation and reflection of electromagnetic waves; guided electromagnetic waves; high-frequency oscillators and tubes; radiation engineering. (Weber.)

E. E. 209. Stability in Power Systems (3).

Second semester. Three lectures a week. Prerequisite, E. E. 200. An extension of symmetrical components. E. E. 200, as applied to power systems; study of the stability problem; the swing equation and its solution; the equal-area and Routh's criteria for stability; solutions of faulted three-phase networks; system design. (Reed.)

E. E. 212, 213. Automatic Regulation (3, 3).

First and second semesters. Three lectures a week. Prerequisite, undergraduate major in electrical or mechanical engineering or physics. (It is desirable that the student should have had E. E. 202.). The design and analysis of regulatory systems, emphasizing servo-mechanisms. Regulatory systems are analyzed by means of the governing differential equations to provide background for more practical studies of frequency spectrum analysis. Characteristics of actual systems and practical considerations are studied. (Ahrendt.)

E. E. 215, 216. Radio Wave Propagation (3, 3).

First and second semesters. Three lectures a week. Prerequisite, undergraduate major in electrical engineering, physics, or mathematics. Either E. E. 120 or E. E. 215 required of M.S. degree candidates in electrical engineering. Maxwell's wave equation; concept of retarded magnetic vector potential; propagation over plane earth; propagation over spherical earth; refraction; meteorological effects; complex antennas; air-to-air propagation; lobe modulation. (Reed.)

E. E. 218, 219. Signal Analysis and Noise (3, 3).

First and second semesters. Three lectures a week. Prerequisite, undergraduate major in electrical engineering or physics. Fourier series and integrals; phase and frequency modulation; noise figures of linear systems; shot effect; power spectra; applications of correlation function; properties of noise. (Weber, Freeman.)

E. E. 222. Graduate Seminar (1).

Second semester. Prerequisite, approved application for candidacy to the degree of Master of Science or Doctor of Philosophy in electrical engineering. Seminars are held on topics such as micro-wave engineering, radiation engineering, non-linear circuit analysis, tensor analysis, and other topics of current interest. Since the subject matter is continually changing, a student may receive a number of credits by re-registering. (Corcoran, Reed, Weber and Wagner.)

E. E. 232. Active Network Analysis (3).

Second semester. Three lectures a week. Prerequisite, E. E. 202 or E. E. 204. The complex frequency plane; conventional feedback amplifier theory; Bode's mathematical definitions of feedback and sensitivity; theorems for feedback circuits; stability and physical realizability of electrical networks; Nyquist's and Routh's criteria for stability. (Corcoran, Vanderslice.)

E. E. 233. Network Synthesis (3).

First semester. Three lectures a week. Prerequisite, E. E. 232 or consent of In-

structor. Design of driving-point and transfer impedance functions with emphasis on the transfer loss and phase of minimum-phase networks; flow diagrams; physical network characteristics, including relations existing between the real and imaginary components of network functions; modern methods of network synthesis. (Corcoran, Vanderslice.)

E. E. 235. Applications of Tensor Analysis (3).

First semester. Three lectures a week. Prerequisite, E. E. 202. The mathematical background of tensor notation which is applicable to electrical engineering problems. Applications of tensor analysis to electric circuit theory and to field theory. (Wagner.)

E. E. 250. Electrical Engineering Research.

Prerequisite, approved application for candidacy to the degree of Master of Science or Doctor of Philosophy in electrical engineering. Six semester hours of credit in E. E. 250 are required of M.S. degree candidates and a minimum of eighteen semester hours is required of Ph.D. candidates. A thesis covering an approved research problem and written in conformity with the regulations of the Graduate School is a partial requirement for either the degree of Master of Science or the degree of Doctor of Philosophy in electrical engineering. (Graduate Staff.)

GENERAL ENGINEERING SUBJECTS

For Advanced Undergraduates and Graduates

Engr. 100. Engineering Contracts and Specifications (2).

Second semester. Prerequisite, senior standing in engineering. The fundamental principles of law relating to business and to engineering and their application to engineering contracts and specifications. Professional ethics. (Steinberg.)

MECHANICAL ENGINEERING

Professors Younger, Shreeve, Jackson, Long; Associate Professors Allen, Hayleck, Eyler; Assistant Professors Hennick, Wockenfuss, Cather, Sayre; Instructors Hurlbrink, Elkins, Shippling, Swearman.

For Advanced Undergraduates

M. E. 50. Principles of Mechanical Engineering (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites Phys. 21, and Math. 21. Required of juniors in Civil Engineering. Elementary thermodynamics and the study of heat, fuel and combustion in the production and use of steam for generation of power. Supplemented by laboratory tests and trips to industrial plants. (Cather, Sayre.)

M. E. 51. Thermodynamics (4).

First semester. Three lectures and one laboratory period a week. Prerequisites, Math. 21, Phys. 21. Required of seniors in Electrical Engineering. The properties, characteristics, and fundamental equations of gases and vapors. An analysis of basic heat engine, air compression, refrigeration, and vapor cycles. Flow and non-flow processes for gases and vapors. Theory supplemented by laboratory tests. Laboratory fee, \$3.00 per semester. (Cather.)

M. E. 52. Power Plants (4).

Second semester. Three lectures and one laboratory period a week. Required of seniors in Electrical Engineering. Prerequisite, M. E. 51. The study of power plant cycles using as heat sources nuclear reactors, solid, liquid and gaseous fuels. Includes analysis and design of such equipment as: reactors, boilers, turbines, regenerators and their accessories. Laboratory fee, \$3.00 per semester. (Cather.)

M. E. 53. Metallography (3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisite, to be taken concurrently with Mech. 52. A study of the structure of metals and alloys as related to their properties. Study of crystallization, plastic deformation, constitution diagrams, manufacturing processes, heat treatment and effect of alloying elements on ferrous and non-ferrous materials. Laboratory work in thermal analysis, microscopy, heat treatment and testing of metals. (Jackson, Eyler.)

M. E. 54. Fluid Mechanics (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites, Mech. 2; M. E. 100, concurrently. A study of fluids under all possible conditions of rest and motion. The approach is analytical, rational, and mathematical rather than empirical. Applications to turbine and centrifugal pump design and flow of gases. Laboratory fee, \$3.00 per semester. (Sayre.)

For Advanced Undergraduates and Graduates**M. E. 100. Thermodynamics (3).**

First semester. Two lectures and one laboratory period a week. Prerequisites, Phys. 20; Math. 21, concurrently. Required of juniors in Mechanical and Aeronautical Engineering. The properties, characteristics, and fundamental equations of gases, and vapors. Application of the 1st and 2nd Laws of Thermodynamics in the analysis of basic heat engines, air compression, and vapor cycles. Flow and non-flow processes for gases and vapors. (Eyler, Sayre.)

M. E. 101. Heat Transfer (2).

First semester. Two lectures a week. Prerequisite, M. E. 100; M. E. 54, concurrently. Required of seniors in Mechanical Engineering. Basic principles of heat transfer including a study of conduction by steady state and variable heat flow, free and forced convection, radiation, evaporation and condensation of vapors, and the application of the principles of heat transfer to design problems. (Eyler.)

M. E. 102. Heating and Air Conditioning (3).

Second semester. Two lectures and one laboratory period a week. Prerequisites, M. E. 100; M. E. 101, concurrently. Required of seniors in Mechanical Engineering. The fundamentals of heating and cooling load computations. Basic information on heating and air conditioning systems for residential and industrial use. (Allen, Eyler.)

M. E. 103. Refrigeration (3).

First semester. Two lectures and one laboratory period a week. Prerequisites, M. E. 100, M. E. 101, M. E. 102; M. E. 54, concurrently. Required of seniors in Mechanical Engineering. Thermodynamic analysis of air, vapor compression, absorption and water refrigeration systems. Characteristics of refrigerants. Study of refrigeration as applied to cooling and dehumidification in air conditioning. Low temperature refrig-

eration, the heat pump, and other special topics. Laboratory fee, \$3.00 per semester.
(Allen, Eyler.)

M. E. 104, 105. Prime Movers (4, 4).

First and second semesters. Three lectures and one laboratory period a week. Prerequisites, M. E. 100; M. E. 54, concurrently. Required of seniors in Mechanical Engineering. The study of all types of power plants including internal combustion engines, gas turbines and steam stations; using all types of heat sources including nuclear reactors, solid, liquid and gaseous fuels. Includes the study of such cycles as Otto, Diesel, Brayton and Rankine. Analysis and design of various components such as: reactors, regenerators, turbines, compressors, boilers and condensers. (Shreeve, Cather.)

M. E. 106, 107. Mechanical Engineering Design (4, 4).

First and second semesters. Two lectures and two laboratory periods a week. Prerequisites, Mech. 52; M. E. 53 for 107. A study of velocity, acceleration and displacement of linkages; cam motions and design; statics, inertia and friction forces in machines; gears and miscellaneous motions. Study of stresses and strains in machine parts; design of machine members including fastenings, hoisting and power transmission devices, cylinders, springs, shafts, bearings; introduction to mechanical vibrations. Design of a complete machine. (Jackson, Long, Hayleck.)

M. E. 108, 109. Mechanical Laboratory (2, 2).

First and second semesters. One lecture and one laboratory period a week. Prerequisite, senior standing. Required of seniors in Mechanical Engineering. Experiments on fuels and lubricants, steam engine and turbines, air compressors, gasoline and diesel engines and various other mechanical equipment. Written reports are required on all tests. Laboratory fee, \$3.00 per semester. (Staff.)

M. E. 110. Applied Elasticity (3).

First semester. Three lectures a week. Advanced strength of materials involving beam problems, curved bars, flat plates, shells, statically indeterminate structures. Methods of work and energy. Prerequisites, Mech. 2, Mech. 52; Math. 64, concurrently. (Younger, Long.)

M. E. 111. Dynamics (3).

Second semester. Three lectures a week. Linear, plane, and three dimensional motion, moving axes, balancing, vibration, gyroscope, etc. Prerequisites, Mech. 2, Mech. 52; Math. 64, concurrently. (Younger Long.)

For Graduates

M. E. 200, 201. Advanced Dynamics (3, 3).

First and second semesters. Prerequisites Mech. 52, Math. 64, M. E. 107, M. E. 109. Mechanics of machinery. Dynamic forces. Balancing of rotating parts. Vibrations and vibration damping. Critical speeds. (Younger, Long.)

M. E. 202, 203. Applied Elasticity (3, 3).

First and second semesters. Prerequisites, Mech. 52, Math. 64, M. E. 107. Advanced methods in structural and experimental stress analysis. Advanced strength of materials involving beam problems, curved bars, thin plates and shells, buckling of bars, plates and shells, etc. Advanced work in stress concentrations, plastic deformations, etc., and problems involving instability of structures. (Younger, Long.)

M. E. 204, 205. Advanced Thermodynamics (3, 3).

First and second semesters. Three lectures a week. Prerequisites, M. E. 101, M. E. 104, M. E. 105, Math. 64. Advanced problems in thermodynamics on compression of gases and liquids, combustion and equilibrium, humidification and refrigeration and availability. Problems in advanced heat transfer covering the effect of radiation, conduction, and convection, steady and unsteady flow, evaporation and condensation.

(Shreeve, Allen.)

M. E. 206, 207. Advanced Machine Design (3, 3).

First and second semesters. Two lectures and one laboratory period a week. Prerequisite, Math. 64, M. E. 107. Application of advanced methods of stress analysis to design of special stationary and moving machine parts, including rotating disks, bearings, thick wall cylinders, screw fastenings, crankshafts, etc. Application of linear and torsional vibration and balancing in the design of machine members. Complete design of a machine. Study of current design literature.

(Jackson.)

M. E. 208, 209. Steam Power Plant Design (3, 3).

First and second semesters. One lecture and two laboratory periods a week. Prerequisite, M. E. 105. Design and specifications of power plants with special emphasis on central stations heated by conventional fuels and nuclear reactors. Design of all components including turbines, boilers, and reactors. Problems of water treatment and waste disposal (atomic and ash) are considered.

(Shreeve.)

M. E. 210, 211. Advanced Fluid Mechanics (3, 3).

First and second semesters. Prerequisites, M. E. 54, Math. 64. Advanced theory of the flow of fluids and gases. Hydrodynamic theory. Engineering applications.

(Sayre.)

M. E. 212, 213. Advanced Steam Power Laboratory (2, 2).

First and second semesters. One lecture and one laboratory period a week. Prerequisite, registration in M. E. 204, 205. Research on advanced steam power problems to illustrate and advance steam power theory. Power plant heat balances.

(Shreeve.)

M. E. 214, 215. Advanced Applied Mechanics Laboratory (2, 2).

First and second semesters. One lecture and one laboratory period a week. Prerequisites, registration in M. E. 200, 201 and M. E. 202, 203. Illustrative experiments and research on difficult problems in stress analysis. Photoelasticity. Mechanical vibrations. Critical speeds. Dynamic stresses. Fatigue of materials.

(Sayre.)

M. E. 216, 217. Advanced Internal Combustion Engine Design (3, 3).

First and second semesters. One lecture and two laboratory periods a week. Prerequisites, M. E. 104, 105; M. E. 106, 107 and registration in M. E. 200, 201 and M. E. 204, 205. Each student will carry out complete designs of internal combustion engines.

(Shreeve.)

M. E. 218, 219. Advanced Internal Combustion Engine Laboratory (2, 2).

First and second semesters. One lecture and one laboratory period a week. Prerequisite, registration in M. E. 216, 217. Advanced laboratory tests and problems in the design of internal combustion engines.

(Shreeve.)

M. E. 220. Seminar.

Credit in accordance with work outlined by mechanical engineering staff. Prerequisite, graduate standing in mechanical engineering.

(Staff.)

M. E. 221. Research.

Credit in accordance with work outlined by mechanical engineering staff. Prerequisite, graduate standing in mechanical engineering. Research in any field of mechanical engineering as applied mechanics, heat transfer, thermodynamics, heat, power, etc.
(Staff.)

M. E. 222. Advanced Metallography (3).

First semester. Two lectures and one laboratory period a week. Prerequisite, M. E. 53, Mech. 52. Advanced study of the structure and properties of metals and alloys. Study of the latest developments in ferrous and non-ferrous alloys including stainless steels, high temperature steels, tool steels, aluminum, magnesium and copper alloys. Study of inspection of metals by the use of X-Rays, spectograph, metallograph and magniflux. Review of current literature.
(Jackson.)

M. E. 223, 224. Steam and Gas Turbine Design (3, 3).

First and second semesters. Three lectures a week. Prerequisites, M. E. 101, M. E. 104, M. E. 105, Math. 64. Study of nozzles and blades, with application to all types of turbines and compressors based on detailed heat calculations. Design of regenerators and combustors for gas turbines. Applications to jet propulsion. Fundamentals of rocket, pulse jet and ram jet design.
(Shreeve.)

M. E. 225, 226. Advanced Properties of Metals and Alloys (2, 2).

First and second semesters. Two lectures a week. Prerequisite, Mech. 52, M. E. 53, M. E. 106, M. E. 107. Properties of metals including tensile, impact, fatigue, damping capacity, hardenability, wear, etc. Fabrication problems and selection of metals and alloys. Service failures. Properties required for nuclear engineering applications. Properties of metals at elevated and extremely low temperatures.
(Jackson.)

M. E. 227, 228. Theory of Elasticity (3, 3).

First and second semesters. Three lectures a week. Prerequisites, Mech. 52, M. E. 53, M. E. 106, M. E. 107, Math. 64. Stress and strain at a point. Relation between stresses and strains, general equations of elasticity, plane strain and plane stress, torsion, bending, axially symmetric distribution of stress, plates, thermal stresses, strain energy and approximate methods.
(Younger, Long.)

M. E. 229, 230. Jet Propulsion (3, 3).

First and second semesters. Three lectures a week. Prerequisites, M. E. 101, M. E. 104, M. E. 105. Types of thermal jet units. Fluid reaction and propulsive efficiency. Performance of rockets, aerothermodynamics, combustion chemical kinetics, aerodynamics of high speed air flow. Principles and design of solid and liquid propellant rockets. Design of turbojets and aerjets, ramjets and hydroduct units, including combustion chambers, turbines and compressors.
(Shreeve.)

M. E. 231, 232. Advanced Heat Transfer (3, 3).

First and second semesters. Three lectures a week. Prerequisites, M. E. 101, M. E. 102, M. E. 105. Advanced problems covering effects of radiation, conduction, convection, evaporation and condensation. Study of research literature on heat transfer.
(Shreeve, Allen.)

M. E. 233, 234. Compressible Flow (3, 3).

First and second semesters. Three lectures a week. Prerequisite, M. E. 210, 211 or equivalent. One and two dimensional subsonic, transonic, and supersonic flow.
(Sayre.)

Mechanical Engineering Shop

Shop 1. Machine Shop Practice (2).

First semester. One lecture and one laboratory period a week. Required of sophomores in Aeronautical and Mechanical Engineering. Study and practice of fundamental principles of machine tools. Laboratory fee, \$3.00 per semester. (Hennick, Wockenfuss.)

Shop 2. Machine Shop Practice (1).

Second semester. One laboratory period a week. Prerequisite, Shop 1. Required of sophomores in Mechanical Engineering. Laboratory fee, \$3.00 per semester. Advanced practice with standard machine tools. Exercises in thread cutting, fluting, cutting spur and helical gears, jig work, and cutter and surface grinding. (Hennick, Wockenfuss.)

Shop 3. Manufacturing Processes (1).

Second semester. One combination lecture and laboratory period a week. Required of sophomores in Aeronautical and in Mechanical Engineering. A study of different methods used in industry to fabricate materials of engineering. Sand casting, metal molds, centrifugal casting, lost wax process, extrusion, spinning, powder metallurgy, molded plastics, welding, forging drawing, pressing and rolling. (Hennick, Wockenfuss.)

MECHANICS

Mech. 1. Statics and Dynamics (3).

Second semester. Taken concurrently with Math. 21, and Phys. 21. Solutions of force systems; graphic statics; friction, centroids and moments of inertia; kinetics; work, power, energy, impulse and momentum. (Wedding, Staff.)

Mech. 2. Statics and Dynamics (5).

First semester. Prerequisite, Dr. 3, Phys. 20; Math. 21, concurrently. Required of juniors in Mechanical and Aeronautical Engineering. Solution of force systems in stationary and moving bodies; study of the free body, graphical statics, three dimensional force systems, distributed forces, friction, centroids and moments of inertia; study of the dynamics of bodies including velocity, acceleration, translation, rotation, work and energy, impulse and momentum. (Younger, Hayleck.)

For Advanced Undergraduates

Mech. 50. Strength of Materials (4).

First semester. Prerequisite, Math. 21 and Mech. 1, or equivalent. Required of juniors in civil engineering. Thin-walled cylinders, riveted and welded joints, torsion; stresses in beams; design of columns; use of structural steel handbook. Beam deflections; statically indeterminate beams; combined loadings; composite beams; impact and energy loadings. (Wedding.)

Mech. 51. Strength of Materials (3).

First semester. Prerequisite, Math. 21, and Mech. 1, or equivalent. Required of juniors in electrical and in chemical engineering. A shorter course than Mech. 50. (Wedding, Staff.)

Mech. 52. Strength of Materials (5).

Second semester. Prerequisite, Math. 21, Mech. 2. Required of juniors in Mechanical and Aeronautical Engineering. Study of the stresses and strains in members under various types of loadings including tension, compression, shear, torsion, bending and combined loads. Study of cylinders, joints, beams, statically indeterminate members, columns, curved bars and shafts. Work in strain energy methods, photoelastic theory, fatigue and strain hardening. (Younger, Hayleck.)

Mech. 53. Materials of Engineering (2).

Second semester. One lecture and one laboratory period a week. Prerequisite, Mech. 50 or taken concurrently with Mech. 50. The composition, manufacture, and properties of the principal materials used in engineering; performance of standard tests; interpretation of test results and of specifications. (Wedding.)

SURVEYING**Surv. 1. Elements of Plane Surveying (2).**

First and second semesters. One lecture and one laboratory period a week. Prerequisite, Math. 18. Required of sophomores in civil and in mechanical engineering. Theory and practice in the use of the tape, compass, transit, and level. General survey methods, traversing, areas, coordinates, profiles, cross-sections, volume,stadla. (Gohr and Staff.)

For Advanced Undergraduates**Surv. 50. Advanced Surveying (4).**

Second semester. Two lectures and two laboratory periods a week. Prerequisite, Surv. 1. Required of sophomores in civil engineering. Adjustment of instruments, latitude, longitude, azimuth, time, triangulation, precise leveling, geodetic surveying, together with the necessary adjustments and computations. Topographic surveys. Plane table, land surveys and boundaries. Mine, tunnel and hydrographic surveys. Aerial photogrammetry. (Gohr, Staff.)

Surv. 100. Curves and Earthwork (3).

First semester. One lecture and two laboratory periods a week. Prerequisite, Surv. 50. Required of juniors in civil engineering. Computation and field work for simple, compound and reversed circular curves and spirals; parabolic curves; earthwork computations; complete survey and map, including mass diagram of a short route. (Luce, Staff.)

College of HOME ECONOMICS

STAFF

Marie Mount, M.A., Dean

PAULINE L. ANDERSON, Junior Instructor in Foods and Nutrition.
B.S., Syracuse University, 1940.

MARILYN ARCHER, Instructor in Textiles and Clothing.
B.S., University of Maryland, 1953; M.S., New York University, 1954.

PELA F. BRAUCHER, Associate Professor in Foods and Nutrition.
A.B., Goucher College, 1927; M.S., Pennsylvania State University, 1929.

ELISABETH NIGHTINGALE COLLINS, Instructor in Foods and Nutrition.
B.A., Pembroke College, 1921; M.S., Simmons College, 1947.

EDDIE M. CORNELL, Assistant Professor in Foods and Nutrition.
Ph.B., University of Chicago, 1930; M.A., Columbia University, 1938.

JANE H. CROW, Assistant Professor in Home Management.
B.S., Salem College, 1937; M.S., University of Maryland, 1938.

GEORGE H. CUNEO, Assistant Professor in Art.
B.S., Columbia University, 1945; M.A., 1949.

VIENNA CURTISS, Professor and Head of Department of Practical Art.
B.A., Arizona State College, 1933; M.A., Columbia University, 1935.

NELL D. DUKE, Instructor in Foods and Nutrition.
B.A., University of Alabama, 1924; M.A., George Peabody College for Teachers, 1942.

FREMONT DAVIS, Lecturer in Art.

BARBARA G. ELLIOTT, Junior Instructor in Art.
B.F.A., Maryland Institute of Art, 1954.

IRENE W. ENO, Instructor in Art.

NANCY VARN GREIG, Instructor in Textiles and Clothing.
B.S., University of Vermont, 1952.

EILEEN HEAGNEY, Instructor in Textiles and Clothing.
B.S., Pennsylvania State University, 1941; M.A., Columbia University, 1949.

FLORANCE KING, Lecturer in Foods and Nutrition.
B.S., University of Illinois, 1914; M.A., University of California, 1926; Ph.D., University of Indiana, 1929.

EDWARD L. LONGLEY, Instructor in Art.
B.A., University of Maryland, 1950; M.A., Columbia University, 1953.

NANCY J. MEARIG, Instructor in Home Management.

B.S., New York State College for Teachers, 1947; M.S., Purdue University, 1952.

T. FAYE MITCHELL, Professor and Head of Department of Textiles and Clothing.

B.S., State Teachers College, Springfield, Missouri, 1930; M.A., Columbia University, 1939.

MARIE MOUNT, Dean of College of Home Economics; Professor and Head of Department of Home and Institution Management.

A.B., Indiana University, 1916; M.S., Columbia University, 1924.

G. RUTH PARKER, Instructor in Textiles and Clothing.

B.S., Womens College, University of North Carolina, 1945; M.S., 1952.

SHIRLEY JANE PATTERSON, Lecturer in Foods and Nutrition.

B.S., University of Chicago, 1942.

JEANETTE PELCOVITS, Lecturer in Institution Management.

B.S., University of Toronto, 1934; M.S., Columbia University, 1940.

JUNE CARLSON WILBUR, Assistant Professor in Textiles and Clothing.

B.S., University of Washington, 1936; M.S., Syracuse University, 1940.

ELEANOR HODGSON WHALEY, Junior Instructor in Art.

B.A., University of Maryland, 1954.



ROSSBOROUGH INN

Erected in 1798, the oldest building on the Campus.

COLLEGE OF HOME ECONOMICS

MARIE MOUNT, M.A., *Dean*

THE College of Home Economics serves Maryland and the surrounding area with its program for the education of young men and women interested in social, economic, scientific and aesthetic aspects of homemaking and of family living in relation to the community.

Objectives of the college are: to provide an education emphasizing the development of responsible citizenship; to help students develop a concept of enriched personal and family living; to prepare students for earning a living with home economics as a profession; to develop within students an appreciation of the place of research in our society; and to encourage experiences considered cultural by our modern civilization. These goals are consistent with those of the University as stated in the General Information Issue.

Faculty advisors assist the students to a wise arrangement of studies in their chosen fields, and further, urge them to acquire practical experience therein before graduation.

Special courses are offered for graduates and non-graduates who desire vocational advancement.

Organization

For administrative purposes the College of Home Economics is organized into the Departments of Textiles and Clothing, Practical Art, Home and Institution Management, and Foods and Nutrition.

Facilities

The home of the College of Home Economics, following campus tradition, is a colonial brick building planned and built to present modern equipment and facilities for education in home economics. A home management house is maintained on the campus for experience in management activities of family life.

Located, as the campus is, between two large cities, unusual opportunities are provided for both faculty and students. In addition to the University's general and specialized libraries, Baltimore and Washington furnish added library facilities. The art galleries and museums, the government bureaus and city institutions stimulate study and provide practical experience for the home economics student.

Home Economics Club: Membership is open to all home economics students. The Club is affiliated with the American Home Economics Association.

Omicron Nu, national home economics honor society: Students of high scholarship are eligible for election to membership.

Honors and Awards, Scholarships and Loan Fund

The Danforth Foundation and the Ralston Purina Company Summer Fellowships: One of four weeks to an outstanding junior; one of two weeks to an outstanding freshman.

Borden Home Economics Scholarship Award: Three hundred dollars is given by the Borden Company to the home economics student, who, upon entering her senior year, has completed two or more courses in foods and nutrition and has the highest scholastic standing of eligible students.

Omicron Nu Scholarship Award: Omicron Nu presents annually an award to the freshman in the College of Home Economics who attains the highest scholastic average during the first semester.

The Sears Roebuck Foundation has made available four scholarships of one hundred dollars each for freshmen in the College of Home Economics.

A fund has been provided by Marie Mount for scholarships to home economics students.

Washington Flour Scholarship: This scholarship made available by the Wilkins-Rogers Milling Company of Washington, D. C. for Freshmen in the College of Home Economics, covers all fees and books for one year, and is open to any student who is a resident of the District of Columbia, Prince George's or Montgomery Counties in Maryland, Arlington or Fairfax Counties, or Alexandria in Virginia.

Home Economics in Business Scholarships: The Home Economics in Business section of the District of Columbia Home Economics Association provides several scholarships of one hundred dollars each. Persons eligible are freshmen women students in the College of Home Economics who are residents of the District of Columbia, Prince George's or Montgomery Counties in Maryland, Arlington or Fairfax Counties or Alexandria in Virginia.

A loan fund, composed of contributions by the District of Columbia Home Economics Association, Maryland Chapter of Omicron Nu, and personal gifts, is available for students majoring in home economics.

Home Economics Senior Award: The home economics alumni annually present an award to the senior student who is outstanding in her application of the spirit and principles of home economics in her present living and who best shows promise of carrying these into her future home and community.

For other scholarships and awards, see General Information Issue.

Admission

All students desiring to enroll in the College of Home Economics must apply to the Director of Admissions of the University of Maryland at College Park.

In selecting students more emphasis will be placed upon good marks and other indications of probable success in college rather than upon a fixed pattern of subject matter. In general, 4 units of English and 1 unit each of Social and Natural Sciences are required. One unit each of Algebra and Plane Geometry is desirable. While Foreign Language is desirable for certain programs no Foreign Language is required for entrance. Fine Arts, Trade and Vocational subjects are acceptable as electives.

Costs

Actual annual costs of attending the University include \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140.00 to \$170.00 lodging for Maryland residents, or \$180.00 to \$220.00 for residents of other States and Countries; and laboratory fees which vary with the laboratory courses pursued. A charge of \$250.00 is assessed students not residents of the State of Maryland. A matriculation fee of \$10.00 is charged all new students.

All students enrolled in the College of Home Economics are charged a College Fee of \$10.00 per semester to cover Laboratory Fees in their College. This fee takes the place of laboratory fees shown for each course which are charged only to students not enrolled in the College of Home Economics.

General Information

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization Program, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denominational clubs, fraternities, sororities, societies and special clubs, the University band, student publications, University Post Office and Supply Store, write to the Director of Publications for the General Information Issue of the Catalog.

Degrees

The degree of Bachelor of Science is conferred for the satisfactory completion with an average of C or better, of a prescribed curriculum of 120 academic semester hour credits. This is exclusive of 4 credits in hygiene and 4 in physical activities for women—a total of 128 credits, and exclusive of 12 credits in basic Air Science and 4 in physical activities for men—a total of 136 credits. No grade below a C is acceptable in courses within the field chosen as a major.

The Master of Science degree is offered in Foods and Nutrition and Textiles and Clothing in the College of Home Economics and in Home Economics Education in the College of Education.*

Military Instruction

All male students, unless specifically exempted under University rules, are required to take basic Air Force R. O. T. C. training for a period of two years. The successful completion of this course is a prerequisite for graduation, but it must be taken by all eligible students during the first two years

*See the Graduate School announcements.

of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

Selected students who wish to do so may carry advanced Air Force R. O. T. C. courses during their Junior and Senior years which lead to a regular or reserve commission in the United States Air Force.

For further details concerning the requirements in Military Instruction, write the Director of Publications for a copy of the "General Information Issue" of the Catalog.

The Student Load

The student load in the College of Home Economics varies from 15-18 credits. A student wishing to carry more than 18 credits must have a B-grade average and the permission of the Dean.

Curricula†

A student may elect one of the following curricula, or a combination of curricula: general, home economics education, textiles, textiles and clothing, practical art, crafts, home economics extension, institution management—food service and housekeeping administration, and foods and nutrition. A student who wishes to teach home economics may register in home economics education in the College of Home Economics or in the College of Education. (See Home Economics Education.) Students in all curricula follow the same program during the freshman year. It is advisable for students to choose a curriculum at the beginning of the sophomore year. Before continuing with the third year of any curriculum, the student must have attained junior standing: 64 semester hours with a C-grade average. (See Academic Regulations, Junior standing.)

GENERAL HOME ECONOMICS

The general home economics curriculum is planned to give students a good basis for personal development, for education in family living, and for job opportunities requiring a general knowledge of the various areas of home economics. Electives are adequate for further developing a special ability or interest within the areas of home economics or within other colleges, such as: music, social science, radio, journalism, education.

†In order to meet the particular need of a student, certain adjustments in these requirements may be made with the approval of the student's adviser and Dean.

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	3
G. & P. 1—American Government.....	3	....
Speech 18, 19—Introductory Speech.....	1	1
*H. E. 1—Home Economics Lectures.....	0	....
Tex. 1—Textiles.....	....	3
Pr. Art 1—Design.....	3	....
Hea. 2, 4—Personal and Community Health (for women).....	2	2
A. S. 1, 2—Air Science (for men students).....	(3)	(3)
Physical Activities.....	1	1
Elective.....	3	3
Total.....	16	16

Sophomore Year

Eng. 3, 4—Composition and World Literature or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
**Science.....	3	3
Foods 2, 3—Foods.....	3	3
Econ. 37—Fundamentals of Economics.....	3	....
Psych. 1—Introduction to Psychology.....	....	3
Clo. 20—Clothing Construction.....	3	....
Pr. Art 20—Costume Design.....	....	3
Physical Activities.....	1	1
A. S. 3, 4—Air Science (for men students).....	(3)	(3)
Total.....	16	16

Junior Year

Home Mgt. 150, 151—Management of the Home.....	3	3
Nut. 110—Nutrition or.....	3	....
Nut. 10—Elements of Nutrition.....	(3)	....
Pr. Art 2—Survey of Art History.....	2	....
Pr. Art 40, 41—Interior Design.....	1	3
Clo. 22—Clothing Construction or Clo. 21, Pattern Design.....	....	2-(3)
Foods 101—Meal Service.....	....	2
Foods 100—Food Economics.....	2	....
Zool. 16—Human Physiology.....	4	....
or Zool. I—General Zoology—4 cr.		
Elective.....	3	6
Total.....	18	16-17

Senior Year

H. 5, 6—History of American Civilization.....	3	3
Home Mgt. 152—Experience in Management of the Home.....	....	3
C. Ed. 110—Child Development.....	3	....
Bact. 51—Household Bacteriology.....	....	3
Electives.....	8-9	6
Total.....	14-15	15

*Not required of men students.

**Science credits totaling 6-8 semester hours may be selected from the following: Bot. 1—General Botany (4); Chem. 1, 3—General Chemistry (4, 4); Chem. 11, 13—General Chemistry (3, 3); Ent. 1—Introductory Entomology (3); Geog. 1, 2—Economic Resources (2, 2); Physics 1, 2—Elements of Physics (3, 3); Soc. 5—Anthropology (3); Chemistry is required for certain advanced courses in foods, nutrition, and textiles.

Textiles and Clothing

The curricula in textiles and clothing are planned to help students to be intelligent and responsible consumers; to give them preliminary training for positions in textiles and clothing in business, in textile testing, and research in textiles and clothing.

Men majoring in these curricula will be allowed substitutions for certain required courses and will choose supporting courses according to their particular interests and needs.

Clo. 20. Clothing Construction is to be taken in the second semester of the freshman year instead of an elective. Clo. 22, Clothing Construction may be required of students needing the additional experience.

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature, or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
*Science	3	3
Foods 1—Introductory Foods.....	....	3
Econ. 37—Fundamentals of Economics.....	3	(3)
Psych. 1—Introduction to Psychology.....	(2)	3
Pr. Art 20—Costume Design.....	....	3
Clo. 21—Pattern Design.....	3	(3)
A. S. 3, 4—Air Science (for men students).....	(3)	(3)
Physical Activities.....	1	1
Electives	3	....
Total	16	16

Textiles

Junior Year

Home Mgt. 150, 151—Management of the Home.....	3	3
Foods 101—Meal Service.....	2	....
Nut. 10—Elements of Nutrition or.....	3	....
Nut. 110—Nutrition.....	(3)	....
Art .....	....	2
Physics 1, 2—Elements of Physics.....	3	3
Chem. 21, 32, 33, 34—Elements of Organic Chemistry.....	3	3
Math. 10—Algebra.....	....	3
Tex. 100—Advanced Textiles.....	3	....
Tex. 102—Textile Testing .....	....	3
Total.....	17	17

*Chemistry 11, 13 are required for a major in textiles.

Senior Year

	<i>Semester</i>	
	<i>I</i>	<i>II</i>
H. 5, 6—History of American Civilization.....	3	3
Bact. 51—Household Bacteriology.....	....	3
Tex. 101—Problems in Textiles.....	....	3
Chem.—Chemistry .....	....	4
Home Mgt. 152—Experience in Management of the Home.....	3	....
C. Ed. 110—Child Development .....	....	3
B. A. 130—Elements of Business Statistics.....	3	....
Speech	3	....
Tex. 108—Decorative Fabrics	2	....
Total.....	14	16

Textiles and Clothing*Junior Year*

Home Mgt. 150, 151—Management of the Home.....	3	3
Nut. 10—Elements of Nutrition.....	....	3
Art	3	3
Clo. 122—Tailoring.....	2	....
Tex. 100—Advanced Textiles.....	3	....
Foods 101—Meal Service.....	2	....
Psychology .....	....	3
Tex. 108—Decorative Fabrics	2	....
Electives .....	....	3
Total.....	15	15

Senior Year

H. 5, 6—History of American Civilization.....	3	3
Bact. 51—Household Bacteriology.....	....	3
C. Ed. 110—Child Development.....	3	....
Tex. 105—Consumer Problems in Textiles or.....	....	3
Tex. 106—Household Textiles	(3)	....
Home Mgt. 152—Experience in Management of the Home.....	3	(3)
Clo. 120—Draping.....	3	....
Clo. 124—Projects and Readings in Textiles and Clothing.....	2	....
Speech	(3)	3
Clo. 126—Fundamentals of Fashion.....	....	3
Electives	3	2
Total.....	17	17

Practical*Art (For Women)

This curriculum permits a choice of three fields of concentration: art in advertising, interior design, costume design. Emphasis is given to the selection

of wearing apparel and house furnishings with relation to personality and family living. Positions available to graduates include designing, promotion, selling or buying of wearing apparel or house furnishings or both.

Practical Art (For Women)

Freshman Year

Pr. Art. 2—Survey of Art History (2) and O. T. 1—Principles of Typewriting (2) are required subjects for the freshman year. O. T. 1 is not required of students who have completed one full year of typing in high school.

	Semester	
	I	II
Eng. 3, 4—Composition and World Literature or	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
Econ. 37—Fundamentals of Economics.....	3	....
Psych. 1—Introduction to Psychology.....	....	3
Foods 1—Introductory Foods.....	3	....
Pr. Art 20—Costume Design.....	3	....
Pr. Art 21—Action Drawing.....	....	2
Pr. Art 30—Typography and Lettering.....	3	....
Pr. Art 40, 41—Interior Design.....	1	3
Laboratory Science.....	....	4
Physical Activities.....	1	1
Total	17	16

Junior Year

Home Mgt. 150, 151—Management of the Home.....	3	3
Foods 101—Meal Service.....	2	....
Nut. 10—Elements of Nutrition.....	....	3
*Econ. 150—Marketing Principles and Organization.....	3	....
*B. A. 154—Retail Store Management.....	3	....
Pr. Art 0—Professional Lectures.....	....	0
*Pr. Art 38—Photography.....	2	....
Pr. Art 120, 121—Costume Illustration, or.....	2	2
Pr. Art 142, 143—Advanced Interior Design.....	(2)	(2)
One group of the following:.....	3	3
Advertising: Cr. 3—Creative Art Inspired by Primitive Art 2		
Pr. Art 4—Three-dimensional Design 2		
Pr. Art 3—Silk Screen Printing 2		
Costume: Clo. 120—Draping 3		
Tex. 105—Consumer Problems I. Textiles 3		
Interior: Tex. 106—Household Textiles 3		
Clo. 128—Home Furnishings 3		
Elective .....	....	3
Total	18	14

NOTE: Students who are interested in merchandising are advised to take Pr. Art 198—Store Experience (3) the summer following their junior year. They must make arrangements with the Head of the Department of Practical Art early in the spring semester of the junior year.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
H. 5, 6—History of American Civilization.....	3	3
Home Mgt. 152—Experience in Management of the Home.....	(3)	3
C. Ed. 110—Child Development.....	(3)	3
*Speech 115—Radio in Retailing.....	3	....
*B. A. 155—Problems in Retail Merchandising.....	....	3
Pr. Art 132—Advertising Layout.....	2	(2)
Pr. Art 136—Display.....	2	(2)
Individual Problems in Advertising, Costume, or Interior.....	2	2
Electives	3	2
Total.....	15	16

Practical Art (For Men)

Requirements are the same as for women with the following modifications:

Additions: A. S. 1, 2, 3, 4; 15 hours in art in merchandising, merchandising, and creative writing to be selected in consultation with the student's adviser.

†Omissions: H. E. 1; Foods 1, 101; Home Mgt. 150, 151, 152; C. Ed. 110; Hea. 2, 4.

Crafts (For Women)

This curriculum permits a choice of two vocational areas: pre-occupational therapy and teaching. Emphasis is given to the joy of creation through crafts. Good design is stressed.

Freshman Year

Pr. Art. 2—Survey of Art History (2) is a required subject of the freshman year.

*Students who desire a non-business program may substitute one of the following programs for the 18 credits in starred courses: 12 semester hours of French, German, or Spanish plus one of the following groups of courses: I—Soc. 5—Anthropology (3); Eng. 12—Introduction to Creative Writing (2); Eng. 170—Creative Writing (2) or Speech 117—Radio Continuity Writing (3). II—Journ. 10, 11—News Reporting (6); Journ. 165—Feature Writing (3). III—Art 5—Still-life (3); Art 104—Life Class (3); Art 113—Illustration (3). IV—Soc. 5—Anthropology (3), H. 51, 52—The Humanities (6) or Art 9, 11—Historical Survey of Painting, Sculpture, and Architecture (6). With any of these variations of the Practical Art curriculum, the student is responsible for being able to schedule her full program of courses. The above curriculum variations are not open to men students as their program is sufficiently flexible.

†Required courses which have been omitted may be taken as electives.

<i>Sophomore Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 3, 4—Composition and World Literature.....	3	3
Foods 1—Introductory Foods	3	....
Econ. 37—Fundamentals of Economics	3	....
Psych 1—Introduction to Psychology.....	....	3
Pr. Art 3—Silk Screen Printing.....	....	2
Pr. Art 4—Three-dimensional Design	2	....
Cr. 2—Simple Crafts	2	....
Cr. 3—Creative Art Inspired by Primitive Art.....	2	....
Cr. 20, 21—Ceramics	2	2
Laboratory Science (see below Pre-occupational Therapy)....	....	4
Physical Activities	1	1
*Electives .....	....	3
Total.....	18	18

Junior Year

Home Mgt. 150, 151—Management of the Home.....	3	3
H. 5, 6—History of American Civilization.....	3	3
Nut. 10—Elements of Nutrition .....	....	3
Pr. Art 0—Professional Lectures .....	....	0
Cr. 30, 31—Metalry	2	2
Cr. 40, 41—Weaving	2	2
Ind. Ed. 9—Art Crafts 1.....	2	....
Ind. Ed. 2—Elementary Woodworking .....	....	2
*Electives	4	2
Total.....	16	17

Senior Year

Pr. Art 38—Photography	2	....
Cr. 5—Puppetry	3	....
Advanced Crafts	4	2
*Electives	4	12
Total.....	13	14

Crafts (For Men)

Requirements are the same as for women with the following modifications:

Omissions: H. E. 1; Food 1; Home Mgt. 150, 151; Hea. 2, 4.

Additions: A. S. 1, 2, 3, 4; also 9 hours in crafts, art therapy or other courses closely related to the student's objective. These to be selected in consultation with the student's advisor and approved by him.

*One of the two following programs to be completed in addition to the above specified subjects:

I. Pre-Occupational Therapy: Zoo. 1. General Zoology (4), Zoo. 14, 15. Human Anatomy and Physiology (4, 4), Phys. 1. Elements of Physics (3), P.E. 100. Scientific Bases of Movement (4), Psych. 5. Mental Hygiene (3), Art 7. Landscape Painting (3).

II. Teaching: H. D. Ed. 100, 101. Principles of Human Development (3, 3), Ed. 130 or 131. Theory of Junior or Senior High School (2), Ed. 140. Curriculum, Instruction and Observation in Art (3), Ed. 145. Principles of High School Teaching (3), Ed. 148. Practice Teaching in Art (8).

For other curricula in art, see offerings under the College of Education and the College of Arts and Sciences.

Home Economics Education

The Home Economics Education curriculum is designed for students who are preparing to teach vocational or general home economics in the public school system of Maryland. It includes studies of various areas of home economics and the allied sciences, with professional training for teaching these subjects. A student majoring in this curriculum may also qualify for a science minor.

Students electing this curriculum may register in the College of Education or in the College of Home Economics.

Home Economics Education Curriculum

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Ed. 1—Freshman Orientation	0	....
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Speech 1, 2—Public Speaking.....	2	2
H. E. 1—Home Economics Lectures.....	0	....
Pr. Art 1—Design.....	3	....
Elective	1	3
Hea. 2, 4—Personal and Community Health.....	2	2
Physical Activities.....	1	1
Tex. 1—Textiles.....	....	3
Total.....	15	17

Sophomore Year

Ed. 2—Introduction to Education.....	2	....
Eng. 3, 4—Composition and World Literature or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
H. 5, 6—History of American Civilization.....	3	3
Chem. 11, 13—General Chemistry.....	3	3
Clo. 20A—Clothing.....	....	3
Foods 2, 3—Foods.....	3	3
Pr. Art 20—Costume Design.....	3	....
Physical Activities.....	1	1
Total	18	16

	Semester	
	I	II
<i>Junior Year</i>		
H. E. Ed. 140—Curriculum, Instruction, and Observation.....	....	3
H. D. Ed. 100, 101—Principles of Human Development.....	3	3
Home Mgt. 150, 151—Management of the Home.....	3	3
Nut. 110—Nutrition	3	....
Foods 101—Meal Service.....	....	2
Clo. 22—Clothing Construction.....	....	2
Econ. 37—Fundamentals of Economics.....	....	3
Zool. 16—Human Physiology.....	4	....
Pr. Art 2—Survey of Art History.....	2	....
Pr. Art 40—Interior Design.....	1	....
Total.....	16	16

**Senior Year*

H. E. Ed. 102—Problems in Teaching Home Economics.....	....	3
H. E. Ed. 143—Teaching Secondary Vocational Home Economics .....	....	3
Home Mgt. 152—Experience in Management of the Home.....	....	3
Ed. 145—Principles of High School Teaching.....	....	3
Bact. 51—Household Bacteriology	3	....
Bot. 1—General Botany.....	4	....
Electives	6	....
Total.....	13	17

Home Economics Extension**

This curriculum outlines the training necessary for the young woman who wishes to work with rural people through extension service or other agencies interested in the educational and social problems of rural living.

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
Chem. 11, 13—General Chemistry.....	3	3
Foods 2, 3—Foods.....	3	3
Econ. 37—Fundamentals of Economics	3	....
Clo. 20—Clothing Construction	3	....
Psych. 1—Introduction to Psychology .....	....	3
Clo. 21—Pattern Design .....	....	3
Physical Activities.....	1	1
Total.....	16	16

*Subjects in the senior year will be so arranged that the two semesters may be interchanged.

**Experience in the field of Home Economics Extension is encouraged for all students majoring in this curriculum. Such experience should be gained before the completion of the senior year.

	Semester	
	I	II
<i>Junior Year</i>		
H. Mgt. 150, 151—Management of the Home.....	3	3
Foods 100—Food Economics	2	....
Nutrition 110—Nutrition	3	....
History 5, 6—History of American Civilization.....	3	3
H. D. Ed. 100, 101—Principles of Human Development I and II..	3	3
Nutrition 112—Dietetics .....	....	3
R. Ed. 150—Extension Education .....	....	2
Zoo. 16—Human Physiology	4	....
Pr. Art 2—Survey of Art History.....	....	2
Pr. Art 40—Interior Design .....	....	1
Total.....	18	17
<i>Senior Year</i>		
H. Mgt. 152—Experience in Management of the Home.....	3	....
H. E. 103—Demonstrations .....	....	2
Bact. 51—Household Bacteriology .....	....	3
Soc. 113—The Rural Community .....	....	3
Pr. Art elective (Pr. Art or Crafts course).....	(2)-3	....
Clo. 128—Home Furnishings .....	....	3
H. E. Ed. 102—Problems in Teaching Home Economics.....	3	....
R. Ed. 160—Agricultural Information Methods.....	2	....
Foods 101—Meal Service	2	....
Electives	2	3-(4)
Total.....	(14)-15	14-(15)

Institution Management

This curriculum provides training for those interested in housing and the food service administration for large groups of persons. The work is of two general types: (1) food service in such institutions as hospitals, schools and colleges; in the public schools where a midday meal is served; and in commercial organizations; restaurants, inns, hotels and industrial cafeterias; (2) housekeeping in inns, hotels, hospitals, clubs, schools and colleges.

This curriculum meets the academic requirements for entrance to a dietetic internship course and for membership in the American Dietetic Association.

Students following this curriculum are required to have, before the senior year, field experience in food service. This experience must be satisfactory in length of time, type of work and in quality.

Men specializing in institution management will be allowed substitutions for certain required courses.

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
Chem. 11, 13—General Chemistry.....	3	3
Foods 2, 3—Foods.....	3	3
Econ. 37—Fundamentals of Economics.....	....	3
Zool. 16—Human Physiology.....	4	....
Psy. 1—Introduction to Psychology.....	3	....
Bact. 51—Household Bacteriology.....	....	3
A. S. 3, 4—Air Science (for men students).....	(3)	(3)
Physical Activities	1	1
Total.....	17	16

For students wishing emphasis on food service administration:

<i>Junior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Home Mgt. 150, 151—Management of the Home.....	3	3
*Nut. 110—Nutrition	3	....
*Nut. 112—Dietetics .....	....	3
*Chem. 31, 32, 33, 34—Organic Chemistry.....	3	3
Inst. Mgt. 160—Institution Organization and Management.....	3	....
*Inst. Mgt. 161—Institution Purchasing and Accounting.....	....	3
C. Ed. 110—Chlld Development.....	..	3
Elective	3	....
Total.....	15	15

Senior Year

H. 5, 6—History of American Civilization.....	3	3
Home Mgt. 152—Experience in Management of the Home.....	....	3
Pr. Art 2—Survey of Art History.....	2	....
Pr. Art 40—Interior Design.....	1	....
H. Ec. Ed. 102—Problems in Teaching Home Economics.....	....	3
*Foods 102—Experimental Foods	3	....
*Inst. Mgt. 162—Institution Foods .....	....	3
*Nut. 113—Diet and Disease .....	....	2
*Inst. Mgt. 164—Advanced Institution Management.....	....	2
*Chem. 81, 82—General Bio-Chemistry.....	4	....
Electives	4	....
Total.....	17	16

For students wishing emphasis on housekeeping administration, the starred courses may be substituted with: Nut. 10—Elements of Nutrition (3), Tex. 105—Consumer Problems in Textiles (3) or Tex. 106, Household Textiles (3), Inst. Mgt. 181—Purchasing and Accounting for Housekeeping Administration (3), I.M. 182—Housekeeping Management (3), Inst. Mgt. 183—Problems in Housekeeping Management (3), Psychology 5—Mental Hygiene (3), Clo. 128—Home Furnishings (3), Psychology 2—Applied Psychology (3), Psychology 110—Educational Psychology (3).

Foods and Nutrition

The purpose of the Foods and Nutrition Curriculum is two-fold—to provide an education in this field for the individual's personal use and for use in promoting good health and happiness in the family group, and to provide training for professional use; in teaching, research, editorial or promotional work.

*A student planning to do institutional work other than hospital dietetics is not required to take Nut. 113, Diet and Disease.

<i>Sophomore Year</i>	Semester	
	I	II
Eng. 3, 4—Composition and World Literature or.....	3	3
Eng. 5, 6—Composition and English Literature.....	(3)	(3)
Chem. 11, 13—General Chemistry.....	3	3
Foods 2, 3—Foods.....	3	3
Zool. 16—Human Physiology.....	4	....
Psych. 1—Introduction to Psychology.....	....	3
Pr. Art 20—Costume Design or.....	(3)	....
Clo. 20A—Clothing Construction.....	3	....
Pr. Art 2—Survey of Art History.....	....	2
Physical Activities.....	1	1
A. S. 3, 4—Air Science (for men students).....	(3)	(3)
Total.....	17	15

<i>Junior Year</i>		
Home Mgt. 150, 151—Management of the Home.....	3	3
Foods 100—Food Economics.....	2	....
Foods 101—Meal Service.....	....	2
Nut. 110—Nutrition.....	3	....
Nut. 112—Dietetics.....	....	3
Chem. 31, 32, 33, 34—Elements of Organic Chemistry.....	3	3
C. Ed. 110—Child Development.....	....	3
Hist. 5, 6—History of American Civilization.....	3	3
Econ. 37—Fundamentals of Economics.....	3	....
Total.....	17	17

<i>Senior Year</i>		
Chem. 166—Food Analysis	3	....
Chem. 167—Food Analysis or Elective.....	....	3
Home Mgt. 152—Experience in Management of the Home.....	....	3
Pr. Art 40, 41—Interior Design.....	1	3
Bact. 51—Household Bacteriology.....	....	3
Foods 102—Experimental Foods.....	3	....
Foods 103—Demonstrations.....	....	2
Foods 104—Advanced Foods.....	2	....
Chem. 81, 82—General Bio-Chemistry.....	4	....
Elective	3	....
Total.....	16	14

COURSE OFFERINGS

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designated by numbers as follows:

1 to 99: courses for undergraduates.

100 to 199: courses for advanced undergraduates and graduates. (Not all courses numbered 100 to 199 may be taken for graduate credit.)

200 to 299: courses for graduates only.

A course with a single number extends through one semester. A course with a double number extends through two semesters.

Courses not otherwise designated are lecture courses. The number of hours' credit is shown by the arabic numeral in parentheses after the title of the course.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

FOODS AND NUTRITION*

Associate Professor Braucher; Assistant Professor Cornell; Instructors, Collins, Duke; Instructor Anderson; Lecturers Patterson, King, Pelcovits

A. Foods

Foods 1. Introductory Foods (3)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$7.00.

For students in other colleges and for majors in Crafts, Practical Art, Textiles and Clothing.

Foods 2, 3. Foods (3, 3)—First and second semesters. One lecture and two laboratory periods a week. Laboratory fee, \$7.00.

Composition, selection and preparation of food with a study of the scientific principles involved. Analysis of recipes and study of standard products.

B. Nutrition

Nut. 10. Elements of Nutrition (3)—First and second semesters.

For students in other colleges and for majors in Crafts, Practical Art, Textiles and Clothing.

*Tailored white uniforms are required for all laboratory work in Foods and Nutrition.

For Advanced Undergraduates and Graduates

Foods 100. Food Economics (2)—First semester. Prerequisite, Foods 1 or 2, 3. One lecture and one laboratory period a week. Laboratory fee, \$7.00.
Sources of our food supply; buying of food for the family.

Foods 101. Meal Service (2)—First and second semesters. Two laboratory periods a week. Prerequisite, Foods 1, or 2, 3. Laboratory fee, \$7.00.
Planning and serving meals for family groups considering nutritional needs and cost; includes entertaining.

Foods 102. Experimental Foods (3)—First semester. One lecture and two laboratory periods a week. Prerequisites, Foods 2, 3; Organic Chemistry; Chem. 31, 32, 33, 34. Laboratory fee, \$7.00.

A study of food preparation processes from the experimental viewpoint.

Foods 104. Advanced Foods (2)—First semester. Two laboratory periods a week. Prerequisite, Foods 1 or 2, 3. Laboratory fee, \$7.00.

Advanced study of manipulation of food materials.

Foods 105. Foods of Other Countries (3)—Second semester. One lecture and two laboratory periods a week. Prerequisite, Foods 1 or 2, 3, or equivalent. Laboratory fee, \$7.00.

Food preparation and food customs of the peoples of other countries.

Nut. 110. Nutrition (3)—First and second semesters. Prerequisite, Foods 2, 3; Organic Chemistry, Chem. 31, 32, 33, 34 to precede or parallel. Laboratory fee, \$7.00.

A scientific study of principles of human nutrition. Animal experimentation. Correction of nutritional deficiencies by dietary studies.

Nut. 111. Child Nutrition (2)—First and Second semesters. One lecture and one laboratory period a week. Prerequisite, Foods 1 or 2, 3, Nut. 10 or 110.

Principles of human nutrition applied to growth and development of children. Experience in a nursery school.

Nut. 112. Dietetics (3)—Second semester. One lecture and two laboratory periods a week. Prerequisite, Nut. 110. Laboratory fee, \$7.00.

A study of food selection for health; planning and calculating diets for children, adults and family units; methods of teaching food values and nutrition.

Nut. 113. Diet and Disease (2)—Second semester. Alternate years. Prerequisite, Nut. 110.

Modifications of the normal adequate diet to meet the nutritional needs in treating certain diseases.

Nut. 114. Nutrition for Health Services (3)—Second semester. Prerequisite, Nut. 10 or the equivalent.

A scientific study of nutritional status and the effect of food habits and food consumption on family health. Nutritional requirements for individuals in different stages of development. Techniques and procedures for the application of nutrition knowledge with consideration of various economic levels and social backgrounds. For graduate nurses, dietitians, health teachers, and social workers.

For Graduates

Foods 200. Advanced Experimental Foods (3-5)—Second semester. Two lectures, three laboratories. Laboratory fee, \$7.00.

Includes experimental problems, special emphasis on use of Maryland products.

Nut. 208. Recent Progress in Human Nutrition (3)—Second semester.

The recent developments in the science of nutrition with emphasis upon the interpretations of these findings for application in health and disease. Aids for the dietitian in creating a better understanding of nutrition among patients, students of graduate status and personnel, such as those of the dental and medical profession.

Nut. 210. Readings in Nutrition (3)—First semester.

Reports and discussion of outstanding nutritional research and investigation.

Nut 211. Problems in Nutrition (3-5)—Second semester.

Experience in a phase of nutrition research which is of interest to the student. Use of experimental animals, human studies, or an extensive and critical survey of the literature.

Nut. 212. Nutrition for Community Service. (3)—First semester.

Applications of the principles of nutrition to various community problems. Students may work on problems of their own choosing.

Foods and Nut. 204. Recent Advances in Foods and Nutrition (2-3)—Second semester.

A study of the recent advances in the manipulation of food materials. Newer methods of processing and packaging. Study of the effect of these methods of processing, packaging and storage on the nutritive value of food. Principles of photography as applied to the preparation and handling of foods for photographic processes for magazines and newspapers.

Foods and Nut. 220. Seminar (1)—One hour a week, first and second semesters.

Reports and discussions of current research in the fields of food and nutrition.

Foods and Nut. 221. Research—Arranged. Credit in proportion to work done and results accomplished. Laboratory fee, \$7.00.

Investigation in some phases of foods or nutrition which may form the basis of a thesis.

HOME ECONOMICS—GENERAL

H. E. 1. Home Economics Lectures (0)—First semester. Required of Home Economics freshmen.

Orientation to the student activities and academic life of the University. Demonstrations, lectures, panels, group and individual discussions on personal and academic adjustment and on vocations open to persons trained in home economics.

H. E. 103. Demonstrations (2). Second semester. Two laboratory periods a week. Prerequisites, Clo. 20; Foods 1 or 2, 3; Tex. 1. Laboratory fee \$7.00.

Experience in planning and presenting demonstrations.

HOME AND INSTITUTION MANAGEMENT

Professor Mount; Associate Professor Braucher; Assistant Professor Crow; Instructors Collins, Mearig; Lecturer, Pelcovits

A. Home Management—Family Living

Home Mgt. 150, 151. Management of the Home (3, 3)—First and second semesters. Two lectures and one laboratory period. Home Mgt. 150 prerequisite to Home Mgt. 151.

Household organization and management; management of time, energy, and money; housing as a social problem; housing to meet family needs; selection and care of household equipment.

Home Mgt. 152. Experience in Management of the Home (3)—First and second semesters. Prerequisites, Home Mgt. 150, 151. Laboratory fee, \$7.00.

Residence for one-third of a semester in the Home Management House. Experience in planning, coordinating and participating in the activities of a household, composed of a faculty member and a group of students.

Home Mgt. 155. Money Management (2)—Integrating the use of money and other available resources to meet both individual and family wants and needs. Not offered 1956-57.

Home Mgt. 156. Household Equipment (2)—Two laboratory periods a week. Problems in selection, use and care of small and large equipment. Offered summer 1956.

Home Mgt. 158. Special Problems in Management (3). Five lectures; one two-hour lab. Prerequisites, H. Mgt. 150, 151 or equivalent. Laboratory fee \$3.00.

Analysis of some of the important management problems in the home and in the home economics classroom. Financial problems, problems in work simplification, problems related to housing and household equipment.

B. Institution Management—Group Living

Inst. Mgt. 160. Institution Organization and Management (3)—First semester. Two lectures and one laboratory period a week. Prerequisites, Foods 2, 3; Nut. 110; Home Mgt. 150, 151 to precede or parallel.

The principles of scientific organization and management as applied to supervision of food services, and to housekeeping administration within an institution.

Inst. Mgt. 161. Institution Purchasing and Accounting (3)—Second semester. Two lectures and one laboratory period a week.

Purchasing of food, supplies, and equipment for institutional use, and the principles involved in accounting as applied to food services.

Inst. Mgt. 162. Institution Foods (3)—Second semester. One lecture and two laboratory periods a week. Prerequisites, Foods 2, 3; Inst. Mgt. 160, 161.

Practical experience in preparing and serving food for large groups, including the use of standard recipes, calculation of food costs, menu planning and use of institution equipment.

Inst. Mgt. 164. Advanced Institution Management (2)—Second semester. One lecture and one laboratory period a week. Prerequisites, Inst. Mgt. 160, 161, 162 or the equivalent.

Special problems in institution management.

Inst. Mgt. 165. The School Lunch (3)—Second semester. Two lectures and one laboratory period a week. Prerequisites, Foods 2, 3; Nut. 110, or equivalent; Inst. Mgt. 160 or experience in management.

Problems relating to the planning, organization, management and serving of the noon meal in schools and in child-care centers.

Inst. Mgt. S166. Nutrition and Meal Planning (2)—Summer session only. Special application to group food services; school lunches, restaurants, and hospitals.

Inst. Mgt. 181. Purchasing and Accounting for Housekeeping Administration (3)—Second semester. Two lectures and one laboratory period.

Purchasing of household textiles, furnishings, supplies and equipment for institutional use, and the principles involved in budgeting and accounting as applied to housekeeping administration.

Inst. Mgt. 182. Housekeeping Management (3)—First semester.

Principles concerning housekeeping management, floor plans, sanitation, safety, personnel and legal problems.

Inst. Mgt. 183. Problems in Housekeeping Management (3)—Second semester. One lecture and two laboratory periods.

Special lectures and advanced problems in housekeeping administration.

Inst. Mgt. 200. Advanced Food Service Management and Supervision (3)—First semester. One lecture and two laboratory periods a week. Prerequisite, Inst. Mgt. 162, 165, or the equivalent.

Special problems in management and service. Opportunity for the student to work out problems encountered on the job.

HOME ECONOMICS EDUCATION*

For Advanced Undergraduates and Graduates

H. E. Ed. 102. Problems in Teaching Home Economics (3)—First and second semesters. Required of seniors in Home Economics Education. Prerequisite, H. E. Ed. 140.

A study of the managerial aspects of teaching and administering a homemaking program: the physical environment, organization and sequence of instructional units, resource materials, evaluation, home projects.

H. E. Ed. 120. Evaluation of Home Economics (2).

The meaning and function of evaluation in education: the development of a plan for evaluating a homemaking program with emphasis upon types of evaluation devices, their construction, and use.

*For further information see College of Education Catalog

H. E. Ed. 140. Curriculum, Instruction, and Observation (3)—Second semester. Required of juniors in Home Economics Education. Prerequisite, Psych. 110.

The place and function of home economics education in the secondary school curriculum. Philosophy of education for home and family living; characteristics of adolescence, construction of source units, lesson plans, and evaluation devices; directed observations in junior and senior high school home economics departments.

H. E. Ed. 148. Teaching Secondary School Vocational Homemaking (8)—First and second semesters. Prerequisite, H. E. Ed. 140 and 102 or 102 parallel. Laboratory fee, \$30.

Observation and supervised teaching in approved secondary school home economics departments in Maryland, the District of Columbia and Baltimore City. Ten weeks of practicum in two schools and with both junior and senior high school classes. Students must reserve a half day in their schedule for the student teaching assignment.

H. E. Ed. 200. Seminar in Home Economics Education (2)—First semester. General prerequisites must include graduate standing.

H. E. Ed. 202. Trends in the Teaching and Supervision of Home Economics (2-4).

Study of home economics programs and practices in light of current educational trends. Interpretation and analysis of democratic teaching procedures, outcomes of instruction, and supervisory practices.

TEXTILES AND CLOTHING

Professor Mitchell; Assistant Professor Wilbur;
Instructors, Archer, Greig, Heagney, Parker.

A. Textiles

Tex. 1. Textiles (3)—First and second semesters. Two lectures and one laboratory period a week. Laboratory fee, \$3.00.

Study of textile fibers; standardization and labeling of textiles; collection and analysis of fabrics.

B. Clothing

Clo. 20. Clothing Construction (3)—First and second semesters. Prerequisite, Tex. 1. Three laboratory periods a week. Laboratory fee, \$3.00.

Interpretation and use of commercial patterns; fabric study; basic fitting and construction techniques.

Clo. 21. Pattern Design (3)—First and second semesters. Three two-hour laboratory periods a week. Prerequisite, Clo. 20 and consent of department or successful performance on the Placement Test in Clothing. Laboratory fee, \$3.00.

Pattern study, figure analysis and pattern alteration, development and adaptation of individual basic pattern, creation of original designs.

Clo. 22. Clothing Construction (2)—First and second semesters. Prerequisites, Tex. 1 and Clo. 20. Two laboratory periods a week. Laboratory fee, \$3.00.

Continuation of Clo. 20. To give additional experience in the use and adaptation of commercial patterns and for increased skill in construction techniques.

Courses for Advanced Undergraduates and Graduates

Tex. 100. Advanced Textiles (3)—First semester. One lecture and two laboratory periods a week. Prerequisite, Tex. 1. Laboratory fee, \$3.00.

The intensive study of textiles from the fiber to the finished fabric, from the producer to the consumer. Analysis of fabric construction and service ability features through the use of laboratory testing.

Tex. 101. Problems in Textiles (3)—Second semester. One lecture and two laboratory periods a week. Prerequisites, Tex. 100, Organic Chemistry. Laboratory fee, \$3.00.

Individual experimental problems in textiles.

Tex. 102. Textile Testing (3)—Second semester. Three laboratory periods a week. Prerequisite, Tex. 100. Laboratory fee, \$3.00.

The theory of textile testing methods, the repeated use of physical testing apparatus, the interpretation of the data, and the presentation of the findings.

Tex. 105. Consumer Problems in Textiles (3)—Second semester. Three lecture periods a week. Prerequisite, Tex. 1, or equivalent. Laboratory fee, \$3.00.

Economic and trade conditions that affect consumer-trade relationships; buying guides for purchase of clothing; performance tests of fabrics.

Tex. 106. Household Textiles (3)—First semester. Three laboratory periods a week. Prerequisite, Tex. 1. Laboratory fee, \$3.00.

Study of textiles for household and institutional use. Evaluation of such textile products through lectures, laboratory tests, survey of literature and field trips.

Tex. 108. Decorative Fabrics (2)—First semester. Two lecture periods a week. Laboratory fee, \$3.00.

Study of historic and contemporary fabrics and laces.

Clo. 120. Draping (3)—First semester. Three laboratory periods a week. Prerequisites, Clo. 21, Clo. 122. Laboratory fee, \$3.00.

Demonstrations and practice in creating costumes in fabrics on individual dress forms; modeling of garments for class criticism.

Clo. 122. Tailoring (2)—First and second semesters. Two laboratory periods a week. Prerequisite, Clo. 21. Laboratory fee, \$3.00.

Construction of tailored garments, requiring professional skill.

Clo. 123. Children's Clothing (2)—First semester. Two laboratory periods a week. Prerequisite, Clo. 20, or equivalent. Laboratory fee, \$3.00.

Children's clothing from the standpoint of age, health, beauty, economy and personality; development of original designs.

Clo. 124. Projects and Readings in Textiles and Clothing (2)—First semester. Prerequisites, Clo. 120, Tex. 100. Laboratory fee, \$3.00.

Analysis of wardrobe planning preparatory to the job situation; grooming as related to the college girl—to the job holder; survey of job opportunities in the field; one special project.

Clo. 125. Costume Draping (3)—Second semester. Three two-hour laboratory periods a week. Prerequisite, Pr. Art 20 or consent of department. Laboratory fee, \$3.00.

By means of draping in fabrics on a form the development of costumes both historic and contemporary for specific needs, purposes and occasions. Consideration of fabric, line and color are integral part of the work.

Clo. 126. Fundamentals of Fashion (2, 3).—Second semester. Prerequisite, Clo. 120. Laboratory fee, \$3.00.

Fashion history; current fashions, how to interpret and evaluate them; fashion show techniques; fashion promotion. The course includes oral and written reports, group projects, panel discussions and field trips.

Clo. 127. Apparel Design (3)—Second semester. One lecture and two laboratory periods a week. Prerequisite, Clo. 120. Laboratory fee, \$3.00.

The art of costuming; trade and custom methods of clothing design and construction; original designing on a dress form.

Clo. 128. Home Furnishings (3)—First and second semesters. Three laboratory periods a week. Prerequisite, Tex. 1, Clo. 20, or consent of instructor. Laboratory fee, \$3.00.

Selection of fabrics for home and institutional furnishings; care and repair of such furnishings; custom construction of slip covers, draperies, bedspreads; refinishing and upholstering a chair.

For Graduates

Tex. 200. Special Studies in Textiles (2-4). Second semester. Laboratory fee, \$3.00.

Clo. 220. Special Studies in Clothing (2-4). First semester. Laboratory fee, \$3.00.

Tex. and Clo. 230. Seminar (1). First and second semesters. Laboratory fee, \$3.00.

Tex. and Clo. 231. Research (4-6). First and second semesters. Laboratory fee, \$3.00.

Tex. and Clo. 232. Economics of Textiles and Clothing (3). Second semester. Laboratory fee, \$3.00.

PRACTICAL ART AND CRAFTS

Professor Curtiss; Assistant Professor Cuneo; Instructors Eno, Longley; Junior Instructors Elliott, Whaley; Lecturer Davis

The Department of Practical Art reserves the right to retain one art problem from each student, from each class, for illustrative purposes; however, it will retain only such problems as are needed by the department.

Pr. Art O. Professional Lectures (O)—Second semester.

Lectures by current merchandisers, designers, occupational therapists, and educators.

A. Practical Art

Pr. Art 1. Design (3)—First and second semesters. Laboratory fee, \$3.00.

Art expression through the use of material such as opaque water color, wet clay, colored chalk, and lithograph crayon, which are conducive to free techniques. Elementary lettering, action figures, abstract design and general composition study. Consideration of art as applied to daily living.

Pr. Art 2. Survey of Art History (2)—First and second semesters. Laboratory fee, \$3.00.

A rapid survey of art from prehistoric times to the twentieth century, showing the great human movements and art ideals which each period has reflected. Emphasis is given to domestic architecture, furnishings, and costume, and to the philosophy and significance of art in today's living.

Pr. Art 3. Silk Screen Printing (2)—First and second semesters. Two laboratory periods a week. Prerequisite: Pr. Art 1, or equivalent. Laboratory fee, \$3.00.

Silk screening on paper and on fabric. Original design is stressed.

Pr. Art 4. Three-dimensional Design (2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00.

Abstract and symbolic design emphasizing mass, volume, and depth in construction problems, which utilize paper, cork, screen, wire, thin sheet metal, fabric, wood, plastics, etc. This course stimulates resourcefulness and imagination in design.

Pr. Art 20. Costume Design (3)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisite, Pr. Art 1, or equivalent.

Clothing selection with relation to personality. Adaptation of changing fashions to the individual. Designing of costumes in mediums such as Conte and lithograph crayon, transparent and opaque water color, soft pencil, India ink, and three-dimensional materials. A minimum of fashion figure drawing. Survey of historic costume and of the fashion industry.

Pr. Art 21, 22. Action Drawing (2, 2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisite, Pr. Art 1, or equivalent.

Quick sketching of live model, from poses and action. This course is basic for costume illustration, advertising and mural painting. Pr. Art 21 prerequisite to Pr. Art 22.

Pr. Art 30. Typography and Lettering (3)—First and second semesters. Laboratory fee, \$3.00. Prerequisite, Pr. Art 1, or equivalent.

A study of typography, hand lettering, and their application. Brief survey of processes of reproduction.

Pr. Art 38, 39. Photography (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Consent of the instructor.

Experimental effects in photography with special emphasis upon pictures for teaching, advertising, display, periodicals, murals and scientific recording. It is advisable for each student to have his own camera.

Pr. Art 40, 41. Interior Design (1, 3)—First semester, one laboratory per week; second semester, three laboratory periods per week. Laboratory fee, on 41 only, \$3.00. Prerequisites, Pr. Art 1, 2, to precede or parallel Pr. Art 40.

Analysis of interiors as backgrounds for various personalities. Study of good and poor interiors. Trips to historic homes, a furniture factory, and retail house furnishing establishments. Original floor plans and wall elevations drawn to scale and rendered in color, considering family life.

B. Crafts

Cr. 2. Simple Crafts (2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00.

Creative art expressed in clay modeling, plaster carving, thin metal working, paper sculpture and finger weaving. Emphasis is laid upon inexpensive materials and tools and simple techniques which can be pursued in the home.

Cr. 3. Creative Art Inspired by Primitive Art (2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00.

Modern design produced after the study of vigorous primitive art as found in the prehistoric art of Spain, France and the southwestern part of the United States; archaic Mesopotamia, Egypt and Greece; Mayan, Aztec and Peruvian cultures; past and present primitive tribes; provincial and peasant groups. Linoleum block printing, textile painting, wood burning.

Cr. 5—Puppetry (3)—First semester. Four laboratory periods a week. Laboratory fee, \$3.00.

Making of marionettes and production of simple puppet shows. Valuable as a teaching, advertising, or recreational medium.

Cr. 20, 21. Ceramics (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisite, Pr. Art 1 or Cr. 2, if possible.

Elementary clay sculpture and pottery making; simple glaze effects. Good design is stressed.

Cr. 30, 31. Metalry (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisite, Pr. Art 1 or Cr. 2, if possible.

Etching, repousse, and sawed filigree in metal such as copper, aluminum, brass, pewter and German silver. Good design is stressed.

Cr. 40, 41. Weaving (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisite, Pr. Art 1, if possible.

Hand weaving on table and floor looms. Good color, texture, and general design is stressed.

For Advanced Undergraduates and Graduates

Pr. Art 100, 101. Mural Design (2, 2)—Second semester. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 2, 3, 21, or consent of the instructor.

Group and individual expression serving two types of objectives: temporary murals for the public schools developed from classroom study and rendered in color chalk or opaque water color on wrapping paper; murals for permanent architectural decoration considering propriety to setting and rendered in oil paint, gouache, fresco, or mosaic. Brief study of civilization's use of murals. Trips to nearby murals having social significance.

Pr. Art 120, 121. Costume Illustration (2, 2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 20, and 21, 22, if possible.

Advanced techniques in rendering of fashion illustration. Experience in use of Ben Day and Craftint. Organization of fashion shows.

Pr. Art 124, 125. Individual Problems in Costume (2, 2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 20, 120, 121, and permission of the instructor.

Advanced problems in costume design or costume illustration for students who are capable of independent work.

Pr. Art 132. Advertising Layout (2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 20, 30.

Rough layouts and finished advertisements utilizing lettering, type specifications, and illustration. Air brush used in large work.

Pr. Art 134, 135. Individual Problems in Advertising (2, 2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 20, 30, 120, 132, or equivalent, and permission of the instructor.

Advanced problems in advertising for students who are capable of independent work.

Pr. Art 136. Display (2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 20, 30.

Practice in effective display for teaching and for merchandising. Cooperation with retail establishments.

Pr. Art 138. Advanced Photography (2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 38, 39, or consent of the instructor.

Individual problems in photography for teaching, advertising, display, periodicals, murals and scientific recording. It is advisable for each student to have his own camera.

Pr. Art 142, 143. Advanced Interior Design (2, 2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 40, 41, or equivalent.

Designing of rooms and furnishings: scale drawing and color rendering in plan, elevation and perspective, or making of maquettes. Study of furniture manufacture and merchandising. Planning of exhibition rooms or houses when possible.

Pr. Art 144, 145. Individual Problems in Interior (2, 2)—First and second semesters. Two laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Pr. Art 1, 40, 41, 142, 143, and permission of the instructor.

Advanced problems in interior design or construction for students who are capable of independent work.

Pr. Art 198. Store Experience (3)—160 clock hours, or 20 continuous eight-hour days, summer following the Junior Year, Practical Art curriculum.

Selling, buying, advertising, or executive work done under supervision in a specified department store or studio. Arrangements to be made with the Head of the Department of Practical Art early in the spring semester, Junior year.

Cr. 102. Creative Crafts (2-4)—Summer session. Daily laboratory periods. Laboratory fee, \$3.00. Prerequisite: permission of the instructor.

Interests of the persons enrolled will determine the crafts to be pursued. Suggested: block printing, wood burning, crayon decoration, paper sculpture, clay modeling, metalry, weaving. Excellent for teachers and for directors of recreation centers.

Cr. 120, 121. Advanced Ceramics (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Cr. 20, 21.

Advanced techniques in clay sculpture and pottery making; preparation of glazes and handling of the kiln.

Cr. 124, 125. Individual Problems in Ceramics (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Cr. 20, 21, 120, 121, and permission of the instructor.

Advanced problems in ceramics. For students who are capable of independent work.

Cr. 130, 131. Advanced Metalry (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Cr. 30, 31.

Advanced techniques in metalry including soldering, stone-setting, and fine etching.

Cr. 134, 135. Individual Problems in Metalry (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Cr. 30, 31, 130, 131, and permission of the instructor.

Advanced problems in metalry for students who are capable of independent work.

Cr. 140, 141. Advanced Weaving (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Cr. 40, 41.

Advanced techniques in weaving.

Cr. 144, 145. Individual Problems in Weaving (2, 2)—First and second semesters. Three laboratory periods a week. Laboratory fee, \$3.00. Prerequisites, Cr. 40, 41, 140, 141, and permission of the instructor.

Advanced problems in weaving for students who are capable of independent work.

College of MILITARY SCIENCE

College of Military Science Staff

JOSEPH R. AMBROSE, Professor of Air Science, Air Force R.O.T.C., Dean, College of Military Science.

Colonel, United States Air Force.
B.A., University of Denver, 1948.

JAMES REGAN, JR., Assistant Dean, College of Military Science.

Colonel, United States Army, Retired.

LOUIS H. CHANEY, Assistant Professor of Air Science, Air Force R.O.T.C.

Lieutenant Colonel, United States Air Force.
A.B., Indiana University, 1933. M.S., Butler University, 1940.

LOUIS J. CICCOLI Assistant to the Dean, College of Military Science.

Lieutenant Colonel, United States Air Force, Retired.
B.S., Georgetown University, 1933.

MATTHEW A. LANDRY, Assistant Professor of Air Science, Air Force R.O.T.C.

Lieutenant Colonel, United States Air Force.
B.S., Rice Institute, 1940.

JOHN P. O'REAGAN, Associate Professor of Air Science, and Commandant of Cadets, Air Force R.O.T.C.

Lieutenant Colonel, United States Air Force.
B.S., Georgetown University, 1950.

JOSEPH B. BOOTH, Assistant Professor of Air Science, Air Force R.O.T.C.

Major, United States Air Force.
B.S., University of Alabama, 1948.

PATTERSON B. LAND, Associate Professor of Air Science, Air Force R.O.T.C., Maryland State College.

Major, United States Air Force.
B.S., University of Florida, 1936; M.A., University of Florida.

NILO NIEMINEN, Assistant Professor of Air Science, Air Force R.O.T.C.

Major, United States Air Force.

HUGH S. ANDREW, Assistant Professor of Air Science, Air Force R.O.T.C.

Captain, United States Air Force.
B.S., University of Colorado, 1950.

GEORGE K. FORD, Assistant Professor of Air Science, Air Force R.O.T.C.

Captain, United States Air Force.
B.S., University of Maryland, 1956.

PETER HAMEL, Assistant Professor of Air Science, Air Force R.O.T.C.

Captain, United States Air Force.
B.A., Hope College, 1941.

SAMUEL HAMMERMAN, Assistant Professor of Air Science, Air Force R.O.T.C.

Captain, United States Air Force.
B.S., Teachers College, 1943.

CLAYTON E. HOLST, Assistant Professor of Air Science, Air Force R.O.T.C.

Captain, United States Air Force.
B.E., Mankato State Teachers College, 1939

- GROVER C. OAKLEY, JR., Assistant Professor of Air Science, Air Force R.O.T.C.
Captain, United States Air Force.
- BERNARD RIELLEY, Assistant Professor of Air Science, Air Force R.O.T.C.
Captain, United States Air Force.
- EMERSON E. MORRIS, Assistant Professor of Air Science, Air Force R.O.T.C., Maryland State College.
First Lieutenant, United States Air Force.
B.S., Temple University, 1950. B.S., University of Maryland, 1954.
- ROBERT E. McCULLOUGH, Instructor, Air Force R.O.T.C.
Master Sergeant, United States Air Force.
- HARRY D. KOCH, Instructor, Air Force R.O.T.C.
Master Sergeant, United States Air Force.
- CARROLL W. OLIFF, Instructor, Air Force R.O.T.C.
Master Sergeant, United States Air Force.
- WILLIAM L. PLUNK, Instructor, Air Force R.O.T.C.
Master Sergeant, United States Air Force.
- ROBERT W. WILT, Instructor, Air Force R.O.T.C.
Master Sergeant, United States Air Force.
- ROBERT R. BAUMBAUGH, Instructor, Air Force R.O.T.C.
Technical Sergeant, United States Air Force.
- CHARLES W. FLEMING, Instructor, Air Force R.O.T.C.
Technical Sergeant, United States Air Force.
- JOSEPH S. JACKSON, Instructor, Air Force R.O.T.C.
Technical Sergeant, United States Air Force.
- CHARLES R. HESSENTHALER, Instructor, Air Force R.O.T.C.
Technical Sergeant, United States Air Force.
- GEORGE W. BURKE, Instructor, Air Force R.O.T.C.
Staff Sergeant, United States Air Force.
- NORMAN C. GUPTON, Instructor, Air Force R.O.T.C.
Staff Sergeant, United States Air Force.
- CONNOR A. ISGETT, JR., Instructor, Air Force R.O.T.C.
Staff Sergeant, United States Air Force.
- LAWRENCE W. SULLIVAN, Instructor, Air Force R.O.T.C.
Staff Sergeant, United States Air Force.
- ALFRED E. WALL, Instructor, Air Force R.O.T.C.
Staff Sergeant, United States Air Force.
- KYLE L. WILLIAMS, Instructor, Air Force R.O.T.C.
Staff Sergeant, United States Air Force.

COLLEGE OF MILITARY SCIENCE**Col. Joseph R. Ambrose, U.S.A.F., Dean**

THE College of Military Science offers training for students who wish professional preparation in the field of Military Science. The length of the normal curriculum is four years. The college is divided into two main departments as follows: (1) The Academic Curricula and (2) Air Force Reserve Officers Training Corps. The work of each of these departments is described in detail under the appropriate heading.

ADMISSIONS AND COSTS

All students desiring to enroll in the College of Military Science must apply to the Director of Admissions of the University of Maryland at College Park.

In selecting students, more emphasis will be placed upon good marks and other indications of probable success in college rather than upon a fixed pattern of subject matter. In general, four (4) units of English and one (1) unit each of Social and Natural Sciences are required. One (1) unit each of Algebra and Plane Geometry is desirable. While Foreign Language is desirable for certain programs no Foreign Language is required for entrance. Fine Arts, Trade and Vocational subjects are acceptable as electives. In addition, students desiring to enroll in this college must either have possessed or now hold a commission in one of the Armed Forces or possess those qualities and attributes, both physical and mental, which are desirable in a commissioned officer.

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board, \$140 to \$170 lodging for Maryland residents, or \$180 to \$220 for residents of other States and Countries; laboratory fees which vary with the laboratory courses pursued. A matriculation fee of \$10.00 is charged all new students. A charge of \$250.00 is assessed to all students who are non-residents of the State of Maryland. Students taking Basic R.O.T.C. are assessed a fee of \$2.50 per year to cover cost of cleaning uniforms. For a more detailed statement of these costs, write to the Director of Publications for a copy of the General Information Issue of the catalog.

GENERAL INFORMATION

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denominational clubs, fraternities, societies and special clubs, the University band, student publications, University Post Office and Supply Store, write to the Director of Publications for the General Information issue of the Catalog.

MILITARY INSTRUCTION

All male students, unless specifically exempted under University rules, are required to take Basic Air Force R.O.T.C. training for a period of two years. The successful completion of this course is a prerequisite for graduation and it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

Selected students who take the Advanced Air Force R.O.T.C. Course during their Junior and Senior years are given a commission in the United States Air Force Reserve or a Certificate of Completion in lieu of a commission at time of graduation.

For further details concerning the requirements for Military Instruction, write the Director of Publications for a copy of the "General Information Issue" of the Catalog.

CURRICULA

Two curricula are offered by the College of Military Science—The Curriculum in Military Science and the Curriculum in Military Affairs. These curricula lead to the degree of Bachelor of Science, providing the student maintains a grade average of not less than "C." The requirement for Junior standing is attained in these curricula when the student has completed 72 hours with a grade average of not less than "C." The requirement for graduation is 136 semester hours including Basic Air Force R.O.T.C. and physical activities.

The controlling objective of the curriculum in Military Science is to educate men who desire to follow a military career. As a prerequisite for completion of this curriculum, a student must have satisfactorily held or presently hold a commission in one of the Armed Forces, or possess those physical and mental requirements which can lead to a commission in one of the Armed Forces. The completion of the Advanced Air Force R.O.T.C. courses also satisfies this requirement.

The primary purpose of the curriculum in military affairs is to offer to those interested students a broad education in subjects pertinent to military and public affairs, with emphasis on government and politics, history and military science.

The first two years of these curricula are common.

GRADUATE STUDIES

A student wishing to pursue graduate studies upon the completion of the Bachelor of Science degree from this college should plan to use the electives in his curriculum as a major in some one of the departments open to him, such as, history, government and politics, sociology, economics, and the like. This major must be arranged under the advisement of the head of the department concerned and the Dean of the College of Military Science.

Common Freshman and Sophomore Years

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
*Eng. 1, 2—Composition and Reading in American Literature.....	3	3
*Soc. 1—Sociology of American Life.....	....	3
*G. & P. 1—American Government.....	3	....
**Speech 1, 2—Public Speaking.....	2	2
Math. 10, 11—Algebra, Trigonometry, Analytic Geometry, or		
Math. 5, 6—General Mathematics, Mathematics of Finance.....	3	3
Modern Language—(One language for two years' study).....	3	3
†A. S. 1, 2—Basic Air Force R. O. T. C.....	3	3
†Physical Activities.....	1	1
Total.....	18	18

Sophomore Year

*Eng. 3, 4 or 5, 6—Composition and Reading in World Literature..	3	3
Hist. 5, 6—History of American Civilization.....	3	3
**Speech 5, 6—Advanced Public Speaking.....	2	2
*Physics 1, 2—Elements of Physics.....	3	3
Modern Language—(Second year).....	3	3
†A. S. 3, 4—Basic Air Force R. O. T. C.....	3	3
†Physical Activities.....	1	1
Total.....	18	18

Military Science Curriculum

Junior Year

††Speech 127, 128—Military Speech and Command.....	2	2
Speech 133—Staff Reports, and Briefings and Visual Aids.....	....	3
Econ. 31, 32—Principles of Economics.....	3	3
Soc. 2—Principles of Sociology.....	3	....
††A. S. 101, 102—Advanced Air Force R. O. T. C.....	3	3
Electives	6	6
Total.....	17	17

*Credit by examination may be permitted for these courses upon successful completion of the college level General Educational Development Tests. Students who receive 12 credit hours in English by this means are required to complete English 8 or English 14. The credits earned in either of these courses may be used as electives.

**Adult off-campus students may substitute Speech 103 and 104, Speech Composition and Rhetoric (3, 3) for Speech 1, 2, (2, 2.), and Speech 5, 6, (2, 2). The additional two hours may be credited toward electives.

†Credit allowed for equivalent service in the Armed Forces. Waived for adult off-campus students.

††Credit allowed to those holding Regular, Reserve or National Guard commissions. Students who do not wish to present these subjects for this degree and who have completed acceptable Service Extension Courses at the Officer Candidate level, or its equivalent, may substitute therefor an equivalent number of hours in Government and Politics and History. In courses numbered 100 or above, of which twelve hours must be in one field.

††Students with experience may be relieved of this subject and pursue advanced studies in lieu thereof

††Students with experience may be relieved of this subject and pursue advanced studies in lieu thereof. Credit is allowed to those students having had one (1) year or more on active duty status, as a commissioned officer in the Regular, Reserve or National Guard.

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
M. S. 151—Military Logistics.....	....	3
††M. S. 152—Military Leadership.....	....	3
M. S. 153—Military Policy of the United States.....	3	....
M. S. 154—Management of the Military Establishment.....	3	....
One of the following:		
G. & P. 101—International Political Relations.....		....
G. & P. 102—International Law.....		....
G. & P. 106—American Foreign Relations.....	3	....
G. & P. 154—Problems of World Politics.....		....
G. & P. 197—Comparative Governmental Institutions.....		....
A. S. 103, 104—Advanced Air Force R. O. T. C.....	3	3
Electives	3	6
Total	15	15

Electives must be taken under advisement and in terms of the objectives of this curriculum.

The Military Affairs Curriculum

Junior Year

Speech 133—Staff Reports, Briefings and Visual Aids.....	3	....
Econ. 31, 32—Principles of Economics.....	3	3
Soc. 2—Principles of Sociology.....	....	3
G. & P. 101—International Political Relations.....	3	....
G. & P. 102—International Law.....	....	3
Hist. 127, 128—Diplomatic History of the United States.....	3	3
Electives.....	6	3
Total.....	18	15

Senior Year

M. S. 151—Military Logistics.....	....	3
M. S. 153—Military Policy of the United States.....	3	....
G. & P. 106—American Foreign Relations.....	3	....
G. & P. 154—Problems of World Politics.....	....	3
Hist. 175, 176—Europe in the World Setting of the Twentieth Century.....	3	3
Geog. 190—Political Geography.....	....	3
Electives.....	7	3
Total.....	16	15

Electives must be taken under advisement and in terms of the objectives of this curriculum.

††Credit allowed to those holding Regular, Reserve or National Guard commissions. Students who do not wish to present these subjects for this degree and who have completed acceptable Service Extension Courses at the Officer Candidate level, or its equivalent, may substitute therefor an equivalent number of hours in Government and Politics and History, in courses numbered 100 or above, of which twelve hours must be in one field.

††Students with experience may be relieved of this subject and pursue advanced studies in lieu thereof.

††Students with experience may be relieved of this subject and pursue advanced studies in lieu thereof. Credit is allowed to those students having had one (1) year or more on active duty status, as a commissioned officer in the Regular, Reserve or National Guard.

THE U.S.A.F. RESERVE OFFICERS TRAINING CORPS

Instruction in military science and tactics has been an important phase of the College Park division of the University of Maryland since 1856. In 1864 the General Assembly of Maryland accepted the provisions of the Act of Congress of 1862 whereby public lands were donated to the States providing colleges in which a course of military training was maintained. Until 1916 the institution was a military school. After the first World War the military training was reorganized and given as specified in the Acts of Congress of 1916 and 1920, as amended, which are commonly known as the National Defense Acts. Under these laws the Reserve Officer Training Corps is organized to provide basic training and to offer advanced training leading to a commission in the United States Air Force Reserve. All male students, unless specifically exempted, under University rules are required to take basic A.F.R.O.T.C. training for a period of two years. This is a prerequisite for graduation and must be taken by all eligible students in their first two years of attendance whether they intend to graduate or not. Students of the University, regardless of the college in which registered, who successfully complete the Basic Course, Air Force Reserve Officers Training Corps, may apply for admission in the Advanced Course.

The mission of the Senior Division, Reserve Officers' Training Corps is to produce junior officers who have the qualities and attributes essential to their progressive and continued development as officers in the United States Air Force. The major mission is the training of candidates for commissioned officer service as pilots and observers in the Reserve Components of the Air Force of the United States, i.e., the United States Air Force Reserve or the Air National Guard. In addition, the Senior Division, Air Force Reserve Officers Training Corps will provide the principal source for procurement of junior officers for the Regular Air Force since many of the Reserve Officers apply for and are appointed as Regular Officers.

Air Force personnel, approved by the President of the University, are detailed by the Department of the Air Force to administer the course. Officers serve under appointment by the University as Professor or Assistant Professor and selected non-commissioned officers serve as Instructors.

The course of instruction leading to a commission as a second lieutenant is organized into a two-year Basic Course which all male students, except excused veterans and non-citizens, must take, and an elective two-year Advanced Course offered to students selected from among those eligible applicants. To those who do not desire to pursue the Advanced Course the Basic Course offers training in leadership, discipline, citizenship, and other courses which will be of value to the individual should he be called into the Armed Forces.

The necessary training equipment including uniforms, weapons, and technical material, is loaned to the University by the Department of the Air Force. Students in the Basic Course are issued uniforms without cost.

The New Armory located East of the Administration Building has been declared by a Department of the Air Force inspector to be one of the finest buildings used for military instruction in the country. It contains clothing

and ordnance storerooms, class rooms, offices, projection room, a ten firing point small bore range, and a drill floor 240 feet long by 120 feet wide. Drill field, parade grounds and other outdoor training activities are nearby.

Advanced Course

The primary object of the Advanced Course is to provide military instruction and systematic training to selected eligible students through the agency of educational institutions, to the end that they may qualify as United States Air Force Reserve officers. It is intended to attain this objective in accordance with the terms of the contract during the time the students are pursuing their academic studies at the University.

A student, prior to enrollment in the course, must have satisfactorily completed the Basic Course or have received credit for it by virtue of his military service. The student must have indicated in writing his desire to undertake the course. Selection of students in the Advanced Course will be made by the President of the University and the Professor of Air Science, as provided in Section 47c, National Defense Act. No applicant will be admitted to the advanced course who is less than fourteen or more than twenty-five years of age at the time of admission or who is not able to pass physical standards set forth in Air Force Manual 160-1.

Program of Instruction

In the two years of the Basic Course the instruction will consist of four (4) hours per week, two (2) hours of classroom instruction, and two (2) hours of drill. The Advanced Course will consist of five (5) hours per week, three (3) hours per week of classroom instruction, and two (2) hours of drill. Drill may be cancelled for all students during the inclement season at the discretion of the PAS. Special formations may be held as the PAS may direct.

Uniforms

All cadets must appear in proper uniform at all military drill formations and at such other times as the PAS may designate.

Uniforms for cadets in the Basic Course are furnished by the Government. The uniforms are the regulation uniforms of the United States Air Force, with certain distinguishing features. Such uniforms must be kept in good condition by the cadets. They remain the property of the Air Force, and are intended primarily for use in connection with military instruction. The uniforms will not be worn in part, nor used while the wearer is engaged in athletic activity. The uniforms issued to Basic Course Cadets will be returned to the Military Department at the end of the year, or before, if a student severs his connection with the department.

The Advanced Course cadets will wear an officer-type uniform, purchased on a Federal Government allowance.

Commutation

All members of the Advanced Course will receive a monetary allowance in lieu of subsistence, equivalent to the current value of the garrison ration, to be paid quarterly during the periods of enrollment in the Advanced Course,

less the period of the Advanced Camp of four weeks. During this Camp the student will receive the pay of the seventh enlisted grade as well as travel pay to and from camp. The total period of commutation will not exceed 595 days for any cadet. This allowance may be paid in addition to benefits authorized by the GI Bill of Rights.

Credits

Military instruction offered by the A.F.R.O.T.C. is on a par with other university work, and the requirements of this department as to proficiency are the same as those of other departments. Academic elective credits are given in all colleges for the Advanced Air Force R.O.T.C. Course.

Students who have received military training at any other educational institution under the direction of officers detailed as Professor of Military Science and Tactics, Professor of Air Science, and Professor of Naval Science, may receive such credit as applicable Air Force Regulations allow.

University and Air Force Reserve Officer's Training Corps Bands

The University of Maryland Band and the Air Force Reserve Officers' Training Corps Band are separate musical organizations at the University, existing for the purpose of furthering the musical knowledge of interested students. The Air Force Reserve Officers Training Corps Band functions under the Department of Air Science.

The Air Force Reserve Officers' Training Corps Band is composed of Air Force Reserve Officers' Training Corps cadets. It practices during drill periods and plays for drills and military formations. Uniforms and instruments are furnished by the Federal Government. Members of the Air Force Reserve Officers' Training Corps Band are eligible for enrollment in any of the University Bands.

The University of Maryland Bands are very important and active undergraduate organizations on the Maryland Campus. Membership in the University Bands is open to all interested students of the University by audition with the Director. The Bands furnish music for athletic events and special occasions during the school year. The Fall practice sessions are devoted to the support of the football season, with the band accompanying the football team on some of its trips away from home. During the Winter season the Activities Band plays for basketball games and for boxing matches. At the close of football season, the Concert and Activities Bands are formed. The Concert Band plays several concerts, both on and off the Campus, during the year.

Students who play musical instruments, applying for admission to the University, and who desire to be considered for the University Bands, should indicate their experience and ability on their application form, and should contact the Director at the earliest opportunity for enrollment in one of the University Bands after being accepted for admission to the University.

Band is a regularly scheduled course of instruction under its own constitution. One credit per semester, not to exceed a total of eight (8) credits, may be earned by the student participating in this activity. Uniforms and certain instruments are furnished by the University. Band rehearsals are

conducted in the Band Room in the New Armory. A band letter may be earned each year by faithful attendance. A gold award is presented to the student who earns a letter for four successive years. Students may be elected to positions of honor and responsibility within this student organization which operates under its own constitution.

The University Rifle Teams

The University's rifle teams are under the supervision of the Department of Air Science. Rifle shooting at the University of Maryland is rated as a major sport activity, and varsity letters and sweaters are awarded to team members. The rifle teams representing this institution have achieved a high national standing for they have consistently placed in the top brackets in the National Intercollegiate Rifle Match. The Varsity Rifle Team won the National Intercollegiate Championship in 1947, 1949, 1953, and 1954. The Intercollegiate record score of 1442 was established in 1953. The A.F.R.O.T.C. Team has been a consistent winner in the William Randolph Hearst Trophy Match and the Secretary of the Air Force A.F.R.O.T.C. Rifle Match. The teams have consistently won a very high percentage of the regularly scheduled postal and shoulder matches. Rifles and ammunition are furnished by the State and Federal Governments, and the rifle range in the New Armory used by the team has been pronounced by officials of the National Rifle Association to be among the finest in the country.

Both a Varsity Team and a Freshman Team are placed in intercollegiate competition, with members of the latter team being awarded class numerals. Cadets on the A.F.R.O.T.C. Rifle team receive badges, ribbons, and medals for their performance on the team.

DESCRIPTION OF COURSES

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designated by numbers as follows:

1 to 99: courses for undergraduates.

100 to 199: courses for advanced undergraduates and graduates. (Not all courses numbered 100 to 199 may be taken for graduate credit.)

200 to 299: courses for graduates only.

A course with a single number extends through one semester. A course with a double number extends through two semesters.

Courses not otherwise designated are lecture courses. The number of hours' credit is shown by the arabic numeral in parentheses after the title of the course.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Subjects of courses in Military Science and Tactics are subject to changes necessitated by changes in R.O.T.C. programs prescribed by the armed forces. Students obtain these schedules when they register.

MILITARY SCIENCE AND AIR FORCE R.O.T.C.**A. S. 1, 2. Basic Air Force ROTC (3, 3).**

Two hour periods of Leadership, Drill and Exercise of Command. Three one-hour periods of class instruction. Subjects taught: Introduction to Air Force ROTC, Introduction to Aviation, Fundamentals of Global Geography, International Tensions and Security Organizations, Instruments of National Military Security.

A. S. 3, 4. Basic Air Force ROTC (3, 3).

Two one-hour periods of Leadership, Drill and Exercise of Command. Three one-hour periods of class instruction. Subjects taught: Elements of Aerial Warfare, Targets, Weapons, Aircraft, Air Ocean, Bases, Forces; Careers in USAF.

A. S. 101, 102. First Year Advanced Air Force ROTC (3, 3).

Two one-hour periods of Leadership, Drill and Exercise of Command. Three one-hour periods of class instruction. Subjects taught: Air Force Commander and Staff, Problem Solving Technique, Communications, Process and Air Force Correspondence, Military Law, Courts and Boards, Applied Air Science, Aircraft Engineering, Navigation and Weather.

A. S. 103, 104. Second Year Advanced Air Force ROTC (3, 3).

Two one-hour periods of Leadership, Drill and Exercise of Command. Three one-hour periods of class instruction. Subjects taught: Camp Critique, Principles of Leadership and Management (Seminar), Career Guidance, Military Aspects of World Political Geography, Military Aviation and the Art of War, Briefing for Commissioned Service.

M. S. 151. Military Logistics (3).

First and second semesters. A study of logistics, including (a) the principles governing the national economic activities and resources necessary to support the armed forces (b) a study of the principles and fundamentals of the elements of military logistics, including supply maintenance, transportation, hospitalization and evacuation, construction and logistics planning (c) research by the student on a selected phase of logistics.

M. S. 152. Military Leadership (3).

First semester. Three one-hour classroom periods. A study of the basic requisites, principles and attributes of good military leadership, including both the practical and psychological approaches to the subject. Individual differences in human behavior and the personal element in successful leadership are stressed.

M. S. 153. Military Policy of the United States (3).

First and second semesters. Prerequisites, History 5 and 6. A study of our military history and our military concepts and policies, and their effects upon national objectives, and national policies. A continuing analysis of all the factors which influence national policies, particularly military policy; an evaluation of the lessons to be learned from this historical study.

M. S. 154. Management of the Military Establishment (3).

First and second semesters. Prerequisite, M. S. 151. A study of the need for intelligent and scientific management of the Armed Forces, including a consideration of the background of modern management, the development of the science of management and the emphasis on post-war management of the military establishment. A detailed evaluation of the current thoughts and philosophies of military management.

College of PHYSICAL EDUCATION RECREATION AND HEALTH

FACULTY

LESTER M. FRALEY, *Dean*

A.B., Randolph-Macon College, 1928; M.A., Peabody College, 1937; Ph.D., 1939.

WILLIAM R. CAMPBELL, Instructor of Physical Education and Head Swimming Coach.

B.S., Springfield College, 1949; M.Ed., Springfield College, 1953.

FRANK H. CRONIN, Associate Professor of Physical Education; Head Golf Coach.

B.S., University of Maryland, 1946.

DOROTHY F. DEACH, Professor and Head, Department of Physical Education for Women.

B.S., University of Illinois, 1931; M.S., 1932; Ph.D., University of Michigan, 1951.

ELIZABETH I. FLINCHBAUGH, Assistant Professor of Physical Education.

B.S.P.E., Arnold College, 1931; B.S., West Chester State Teachers College, 1932; M.A., Columbia University, 1947.

HAROLD W. FREEMAN, Instructor of Physical Education.

B.S., Pennsylvania State University, 1942; M.A., New York University, 1948.

MARY R. HARRINGTON, Instructor of Physical Education.

B.S., College of William and Mary, 1949; M.A., New York University, 1951.

ELLEN E. HARVEY, Associate Professor of Physical Education and Recreation.

B.S., New College, Columbia University, 1935; M.E., Teachers College, Columbia University, 1941; Ed.D., University of Oregon, 1951.

MARTHA J. HAVERSTICK, Assistant Professor of Physical Education.

B.S., Pennsylvania State College, 1943; M.S., University of Wisconsin, 1950.

LOUISE S. HOWARTH, Assistant Professor of Physical Education.

A.B., Breanau College, 1928; M.Ed., University of Minnesota, 1949.

JOSEPHINE W. HUBBELL, Assistant Professor of Health Education.

B.S., William and Mary College, 1947; M.A., State University of Iowa, 1948.

JAMES H. HUMPHREY, Associate Professor of Physical Education and Health.

A.B., Denison University, 1933; A.M., Western Reserve University, 1946; Ed.D., Boston University, 1951.

BURRIS F. HUSMAN, Associate Professor of Physical Education.

B.S., University of Illinois, 1941; M.S., 1948; Ed.D., University of Maryland, 1954.

WARREN R. JOHNSON, Professor of Physical Education and Health.

B.A., University of Denver, 1942; M.A., 1947; Ed.D., Boston University, 1950.

JAMES KEHOE, Associate Professor of Physical Education, Director of Intramurals, and Head Track Coach.

B.S., University of Maryland, 1940.

WILLIAM E. KROUSE, Assistant Professor of Physical Education and Head Wrestling Coach.

B.S., University of Maryland, 1942; M.Ed., 1949.

DOROTHY G. MADDEN, Assistant Professor of Physical Education.

A.B., Middleburg College, 1936; M.A., Syracuse University, 1937.

BENJAMIN H. MASSEY, Professor of Physical Education.

A.B., Erskine College, 1938; M.S., University of Illinois, 1947; Ph.D., 1950.

MARY F. MAXEY, Instructor of Physical Education.

B.S., Brenau College, 1947; M.A., University of Maryland, 1953.

DOROTHY R. MOHR, Professor of Physical Education.

B.S., University of Chicago, 1932; A.M., 1933; Ph.D., University of Iowa, 1944.

DORIS NEYENDORF, Instructor of Physical Education.

B.S., University of Illinois, 1949; M.A., University of Maryland, 1953.

H. BURTON SHIPLEY, Associate Professor of Physical Education and Head Baseball Coach.

B.S., University of Maryland, 1934.

DORIS TERRY, Instructor of Health Education.

B.S., Western Kentucky State College, 1949; M.S., University of Indiana, 1952.

THERON A. TOMPKINS, Associate Professor of Physical Education.

B.S., Ipsilanti College, 1926; M.A., University of Michigan, 1929.

JANET A. WESSEL, Assistant Professor of Physical Education.

A.B., MacMurray College, 1943; M.S., Wellesley College, 1944; Ph.D., University of Southern California, 1950; C. P. T., 1948.

ALBERT A. WOODS, Associate Professor of Physical Education.

B.S., University of Maryland, 1933; M.Ed., 1949.

PART-TIME LECTURERS

W. W. COBEY, Associate Professor, Director of Athletics.

A.B., University of Maryland, 1930.

H. A. MILLIKAN, Associate Professor and Head Basketball Coach.

B.S., Oklahoma A. & M. College, 1943.

THOMAS A. MONT, Instructor and Head Football Coach.

B.S., University of Maryland, 1947.

ROBERT R. WARD, Instructor and Assistant Football Coach.
B.S., University of Maryland. 1952.

ALFRED J. WYRE, Head Trainer.



Golf is one of many co-educational classes in sports and recreational activities scheduled for college men and women.

COLLEGE OF PHYSICAL EDUCATION, RECREATION AND HEALTH

LESTER M. FRALEY, Ph.D., *Dean*

This College provides professional preparation leading to the bachelor's degree in the following general areas: physical education, recreation, health and safety education, and physical therapy. Moreover, in conjunction with the Graduate School and the College of Education, graduate programs leading to both masters and doctors degrees are available in physical education, recreation and health. A research laboratory is maintained for faculty members and selected graduate students who are interested in investigating the effects of exercise and various physical education activities upon the body.

A two-year required program of physical education is provided by this College for all men and women of the university, and a two-semester health course is provided for all women.

An extensive intramural sports program for both men and women students also is conducted.

In addition to its various on-campus offerings, this College regularly conducts physical education, recreation and health education courses and workshop for teachers in various parts of the state of Maryland.

SPECIAL FACILITIES AND ACTIVITIES

The close proximity to Baltimore and Washington, and particularly to the Federal agencies and headquarters of national professional organizations in the capital city, affords unusual contact for those who wish to study in the fields which the College embraces. The evolving county-wide programs in these fields in Maryland and adjoining states offer unusual opportunity for practical experience in many types of situations. The great variety of intercollegiate athletic competition in the University offers maximum opportunity for practical advanced athletic participation for those interested in this type of work.

STUDENT ORGANIZATIONS

Women's Professional Club

All women students enrolled in the College are eligible for membership in this organization. It conducts various professional meetings, brings in speakers and promotes various co-recreational activities. It has sponsored trips to District and National conventions of the American Association for Health, Physical Education, and Recreation, and is chartered as a student major club of that organization.

Women's Recreation Association

All women students of the University are members of the Women's Recreation Association, an affiliate of the American Federation of College Women. Under the leadership of their elected officers and representatives, and appointed managers, they participate in a full program of intramural and extramural activities. These, and other recreational and social activities, seek to develop new interests and provide opportunities for the practice of the old. They include free and tournament play in archery, badminton, basketball, bowling, field hockey, golf, softball, swimming, tennis and volleyball; social events such as cookouts, square dancing, roller skating parties, etc.; and corecreational activities in bowling, badminton, volleyball, etc. Tournaments are organized through the dormitory, sorority and 'day dodger' groups of the University. Sports and playdays with other colleges and universities enable the more skilled students to participate with others of similar abilities. Opportunities also are provided for officiating experiences and for the earning of various official WNORC ratings in basketball, field hockey, swimming, tennis and volleyball.

Various special groups and clubs interested in recreation exist on campus inside and outside the jurisdiction of the Women's Recreation Association and offer rich opportunities for the development of other recreational interests. Some of these are the Terrapin Trail Club, Modern Dance Group, Ballroom Dance Club, Riding Club, musical and dramatics groups, and Aqualiners. (Swimming Club)

Aqualiners

This swimming club is open to all women registered in the University. Through weekly meetings, the group concentrates on additional stroke perfection, rhythmic swimming, individual and group stunts, and diving. Members also perform group routines and participate in swim meets on sports days and play days. One of the main objectives of the club is to present a water show in the spring.

Modern Dance Groups

Men and women interested in modern dance concentrate on techniques and individual and group compositions. Members present a spring concert and perform in demonstrations on and off campus. Advanced and beginning groups.

Intramurals for Men

The Intramural Department offers an extensive opportunity for all men to participate in a recreational program of either individual or team sports. A variety of activities are available to fill the student's leisure time and develop skills which may be carried over into later life. Also, many desirable attributes, such as fair play, leadership, team work and sportsmanship, are encouraged and developed by the student participating in the program.

Leagues and tournaments are conducted in the following sports: touch football, horseshoe pitching, tennis, cross country, track and field, basketball,

table tennis, badminton, boxing, wrestling, bowling, volleyball, swimming, foul shooting and softball.

Management and officiating in intramural sports are conducted by students majoring in physical education under the supervision of the Director of Intramurals and under policies and regulations established by the Intramural Council.

Sigma Tau Epsilon, the honorary Women's Recreational Society.

This society, founded in 1940, selects those girls who have obtained an overall 2.5 average and demonstrated outstanding leadership, service and sportsmanlike qualities in the organization and activities of the Women's Recreation Association and its affiliated groups.

Phi Alpha Epsilon, Honorary Society of the College of Physical Education, Recreation and Health.

The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of physical education, recreation, health, physical therapy, and related areas.

Students shall qualify for membership at such time as they shall have attained Junior standing in Physical Education, Health, Recreation, or Physical Therapy, and have a minimum overall average of 2.7 and a minimum professional average of 3.1.

The organization is open to both men and women.



Tennis Class

ADMISSIONS

All students desiring to enroll in the College of Physical Education, Recreation, and Health must apply to the Director of Admissions of the University of Maryland at College Park.

In selecting students, more emphasis will be placed on good marks and other indications of possible success in college, rather than upon a fixed pattern of subject matter. In general, 4 units of English and 1 unit each of Social and Natural Sciences are required. One unit each of Algebra and Plane Geometry is desirable. While Foreign Language is desirable for certain programs, no Foreign Language is required for entrance. Fine Arts, Trade and Vocational subjects

are acceptable as electives. It is especially desirable that the student have at least one unit each in Biological Science and in Physical Science; and in addition, health and safety education, and participation in school programs of physical education and athletics are desirable. Any experience in music, drama, camping, playground and recreational activities, and group leadership also will be helpful. Students whose high school records are consistently low should not enroll in any of the teacher education curricula of this College.

Students desiring to enroll in the professional curriculum must be free from handicapping defects. Physical examinations can be required periodically to determine physical status. Students developing physical defects after enrolling in the College may be recommended for transfer to another curriculum. Competence in motor activities is essential for success in the Physical Education program.

For a more detailed statement of admission, write the Director of Publications for a copy of the "General Information Issue" of the Catalog.

COSTS

Actual annual costs of attending the University include: \$165.00 fixed charges; \$75.00 special fees; \$360.00 board; \$140.00 to \$170.00 lodging for Maryland residents, or \$180.00 to \$220.00 for residents of other States and Countries; and laboratory fees; which vary with the laboratory courses pursued. A matriculation fee of \$10.00 is charged all new students. A charge of \$250.00 is assessed to all students who are non-residents of the State of Maryland.

For a more detailed statement of these costs, write to the Director of Publications for the Catalog of General Information.

MILITARY INSTRUCTION

All male students, unless specifically exempt under University rules, are required to take Basic Air Force R. O. T. C. training for a period of two years. The successful completion of these courses is a prerequisite for graduation, but it must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Transfer students who do not have the required two years of military training will be required to complete the course or take it until graduation, whichever occurs first.

Selected students who wish to do so may carry Advanced Air Force R. O. T. C. courses, during their junior and senior years, which lead to a regular or reserve commission in the United States Air Force.

GENERAL INFORMATION

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denomina-

tional clubs, fraternities, sororities, societies and special clubs, the University Band, student publications, University Post Office and Supply Store, write to the Director of Publications for the General Information Issue of the Catalog.

JUNIOR STATUS

For junior standing in this College, the requirements shall be, in addition to required military and physical education for men, and required physical education and health for women: (1) fifty-six (56) semester hours of academic credit, the whole program to be completed with an average grade of "C" (2.0); and (2) completion of all required physical education and health courses with no grade below "C". Students who have not attained this status must repeat courses with low grades and may take only those advanced courses for which written permission is given by the Dean. The student must obtain a grade of "C" or above in all professional courses during the junior and senior years.

DEGREES

The degree of Bachelor of Science is conferred upon students who have met the conditions of their curricula as herein prescribed by the College of Physical Education, Recreation, and Health, and have completed 120 academic hours, not including military science and/or physical activities. Candidates enrolled in the College of Education with a major in Physical Education or Health Education receive a Bachelor of Science degree upon fulfillment of the requirements as prescribed by that College.

Certain curricula in the College of Physical Education, Recreation and Health, such as Recreational Leadership and Physical Therapy, are not planned to meet state certification requirements.

Each candidate for a degree must file in the Office of the Registrar eight weeks prior to the date of graduation, a formal application for a degree.

Requirements for Degree in Physical Education

Requirements for the Bachelor of Science degree in Physical Education in the College of Physical Education, Recreation, and Health are as follows:

<i>Men</i>	<i>Sem. Cr.</i>
Professional physical education courses (P. E. 30, 50, 59, 61, 63, 65, 67, 100, 101, 103, 113, 115, 123, or 125, 160, 180, 190).....	37
Foundation science courses as prescribed (Zool. 1, 14, 15; Physical Science 3-4 hours)	15-16
Education courses as prescribed (including C. I. O.).....	20
General requirements (Eng. 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1)	24
Specially prescribed requirements (Sp. 7).....	2
University requirements in Basic Air Force R. O. T. C.....	12
Health courses as prescribed (Hea. 40, 50).....	5
Electives	18
Total	136

Women

Professional physical education courses (P. E. 30, 40, 50, 52, 54, 56, 58, 62, 64, 66, 68, 78, 100, 114, 116, 124, 126, 160, 180, 190).....	44
Foundation science courses as prescribed (Zool. 1, 14, 15; Physical Science 3-4 hours)	15-16
Education courses as prescribed (including C. I. O.).....	20
General requirements (Eng. 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1)	24
Specially prescribed requirements (Sp. 7).....	2
Health courses as prescribed (Hea. 40, 50).....	5
Electives	15
Total.....	128

Requirements for Degree in Recreation

Requirements for the Bachelor of Science degree in Recreation in the College of Physical Education, Recreation, and Health are as follows:

Men

College recreation courses (Rec. 10, 30, 40, 100, 110, 120, 140, 180, 190)	23
Prescribed courses in related areas (H. D. Ed. 100, 101; Crafts 2; Music 7; P.E. 30, 50, 59, (61, 63, 65, 67, any two), 101 or 103, 113, 123 or 125; Practical Arts 1; Psych. 1; Soc. 2, 118; Sp. 1, 4, 10, 113)	41-43
Prescribed health courses (Hea. 50).....	2
Prescribed foundation science courses (Zool. 1, 16).....	8
General requirements (Eng. 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1)	24
Basic academic sequence.....	9
University requirements in Basic Air Force R. O. T. C.....	12
Electives	17
Total	136-138

Women

College recreation courses (Rec. 10, 30, 40, 100, 110, 120, 140, 180, 190)	23
Prescribed courses in related areas (H. D. Ed. 100, 101; Crafts 2; Music 7; P.E. 30, 40, 50, 56, 58 (62, 64, 66, 68, any two), 72, 74, 76 or 78, 114, 116, 124 or 126; Practical Arts 1; Psych. 1; Soc. 2, 118; Sp. 1, 4, 10, 113).....	48-49
Prescribed health courses (Hea. 40, 50).....	5
Prescribed foundation courses (Zool. 1, 16).....	8
General requirements (Eng. 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1)	24
Basic academic sequence.....	9
Electives	13
Total.....	130-131

Requirements for Degree in Pre-Physical Therapy

Requirements for the Bachelor of Science degree in Pre-Physical Therapy in the College of Physical Education, Recreation, and Health are as follows:

<i>Men</i>	<i>Sem. Cr.</i>
Foundation science courses (Zool. 1, 14, 15; Chem. 1, 3; Physics 1, 2)	26
General University requirements (English 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1; P.E. 1, 3, 5, 7; A.S. 1, 2, 3, 4).....	40
Specially prescribed requirements (Speech 18, 19, 120; Psych. 1, 5, 121; Sociology 131; P.E. 100, 160; P.T. 10, 11, 20, 21).....	26
Electives	12-18
Physical Therapy Curriculum (12-15 months in affiliated school approved by the Council on Medical Education and Hospitals).....	34
Total.....	138-144

Women

Foundation science courses (Zool. 1, 14, 15; Chem. 1, 3; Physics 1, 2)	26
General University requirements (English 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1; P.E. 2, 4, 6, 8; Health 2, 4).....	32
Specially prescribed requirements (Speech 18, 19, 120; Psych. 1, 5, 121; Sociology 131; P.E. 100, 160; P.T. 10, 11, 20, 21).....	26
Electives	12-18
Physical Therapy Curriculum (12-15 months in affiliated school approved by the Council on Medical Education and Hospitals).....	34
Total.....	130-136

Requirements for Degree in Health Education

Requirements for the Bachelor of Science degree in Health Education in the College of Physical Education, Recreation, and Health are as follows:

<i>Men</i>	<i>Sem. Cr.</i>
Foundation science courses (Zool. 1, 14, 15; Bact. 1, 105; Chem. 11, 13)	26
General requirements (Eng. 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1) ..	24
Other specified requirements (Sp. 7; Psych. 1, 5; Nut. 10).....	11
Professional health education courses (Hea. 10, 30, 40, 50, 70, 110, 120, 140, 150; Ed. 150, or Hea. 180; Ed. 110, or Hea. 190).....	28-30
Education courses (H. D. Ed. 100, 101; Ed. 145, 148).....	17
University requirements in Basic Air Force R.O.T.C. (A. S. 1, 2, 3, 4)	12
University requirements in physical activity (P. E. 1, 3, 5, 7).....	4
Electives	14
Total.....	136-138

Women

Foundation science courses (Zool. 1, 14, 15; Bact. 1, 105; Chem. 11, 13)	26
General requirements (Eng. 1, 2, 3, 4; Hist. 5, 6; Soc. 1; G. & P. 1) ..	24
Other specified requirements (Sp. 7; Psych. 1, 5; Nut. 10)	11
Professional health education courses (Hea. 10, 30, 40, 50, 70, 110, 120, 140, 150; Ed. 150 or Hea. 180; Ed. 110 or Hea. 190)	28-30
Education courses (H. D. Ed. 100, 101; Ed. 145, 148)	17
University requirements in physical activity (P. E. 2, 4, 6, 8)	4
Electives	18
Total	128-130

PROFESSIONAL CURRICULA

Physical Education

This curriculum prepares students (1) for teaching physical education in the secondary schools, (2) for coaching, and (3) for leadership in youth and adult groups which offer a program of physical activity. The first two years of this curriculum are considered to be an orientation period in which the student has an opportunity to gain an adequate background in general education as well as in those scientific areas closely related to this field of specialization. In addition, there is considerable emphasis placed upon the development of skills in a wide range of motor activities. This basic training makes it possible for the student to select related areas, especially in the fields of biology, health education, and recreation as fields of secondary interest. These materially increase the vocational opportunities which are available to a graduate in physical education.

MEN

Physical Education Curriculum

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 1, 2—Composition and American Literature	3	3
Soc. 1—Sociology of American Life	3	...
G. & P. 1—American Government	...	3
Zool. 1—General Zoology	...	4
Sp. 7—Public Speaking	2	...
P. E. 30—Introduction to Physical Education, Recreation, and Health	3	...
P. E. 50—Rhythmic Analysis and Movement	1	...
P. E. 59—Skills in Folk, Square and Social Dance	...	1
P. E. 61, 63—Sport Skills and Gymnastics	2	2
A. S. 1, 2—Basic Air Force R. O. T. C.	3	3
Total	17	16

NOTE: Students classified in Group 3 on Mathematics Entrance Test must take Math. O.

Sophomore Year

Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Physical Science Group Requirement (Mathematics, Physics or Chemistry)	3-4	....
Hea. 40—Personal and Community Health.....	....	3
P. E. 65, 67—Sport Skills and Gymnastics.....	2	2
A. S. 3, 4—Basic Air Force R. O. T. C.....	3	3
Total.....	18-19	18

Junior Year

H. D. Ed. 100, 101—Principles of Human Development I, II.....	3	3
P. E. 100—Scientific Bases of Movement.....	4	....
P. E. 101, 103—Organization and Officiating in Intramurals.....	2	2
P. E. 112, 115—Methods and Materials for Secondary Schools..	3	1
P. E. 123 or 125—Coaching Athletics.....	3	....
P. E. 180—Measurement in Physical Education and Health.....	....	3
Hea. 50—First Aid and Safety.....	....	2
Electives	4	8
Total	19	19

Senior Year

P. E. 140—Curriculum, Instruction and Observation.....	....	3
P. E. 160—Scientific Bases of Movement Applied.....	3	....
P. E. 190—Administration and Supervision of Physical Education, Recreation, and Health.....	....	3
Ed. 145—Principles of High School Teaching.....	....	3
Ed. 148—Student Teaching in the Sec. Sch.....	....	8
Electives	15	....
Total.....	18	17

NOTE: Ed. 148 may be scheduled either semester. Ed. 145, P. E. 140 and P. E. 190 must be scheduled concurrently.

WOMEN

<i>Freshman Year</i>	Semester	
	I	II
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Zool. 1—General Zoology.....	....	4
Sp. 7—Public Speaking	2	....
P. E. 30—Introduction to Physical Education, Recreation, and Health	3	....
P. E. 40—Basic Body Controls.....	1	....
P. E. 50—Rhythmic Analysis and Movement.....	1	....
P. E. 52—Dance Techniques.....	....	1
P. E. 56—Skills and Methods in Folk and Square Dance.....	....	1
P. E. 62, 64—Elementary Techniques of Sports and Gymnastics	2	2
Electives .....	....	2
Total	15	16

NOTE: P. E. 72 may be required, depending upon swimming ability of student.
NOTE: Students classified in Group 3 on Mathematics Entrance Test must take Math. O.

Sophomore Year

Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Physical Science Group Requirement (Mathematics, Physics or Chemistry)	3-4	....
Hea. 40—Personal and Community Health.....	....	3
P. E. 54—Dance Techniques.....	1	....
P. E. 58—Skills and Methods in Social Dance.....	....	1
P. E. 66, 68—Techniques of Sports.....	2	3
P. E. 82—Officiating.....	1	....
Total.....	16-17	16

NOTE: P. E. 74 and/or 76 may be required, depending upon swimming ability of student.

Junior Year

H. D. 100, 101—Principles of Human Development I, II.....	3	3
P. E. 78—Methods of Teaching Aquatics.....	....	2
P. E. 100—Scientific Bases of Movement.....	4	....
P. E. 114, 116—Methods in Physical Education for Secondary Schools.....	3	3
P. E. 124, 126—Practicum in Leadership.....	2	2
P. E. 180—Measurement in Physical Education and Health.....	3	....
Hea. 50—First Aid and Safety.....	....	2
Electives .....	....	4
Total	15	16

Senior Year

P. E. 140—Curriculum, Instruction and Observation.....	....	3
P. E. 160—Scientific Bases of Movement Applied.....	3	....
P. E. 190—Administration and Supervision of Physical Education, Recreation and Health.....	....	3
Ed. 145—Principles of High School Teaching.....	....	3
Ed. 148—Student Teaching in the Sec. Sch.....	....	8
Electives	12	....
Total.....	15	17

NOTE: When Ed. 148 is taken, Ed. 145, P. E. 140 and P. E. 190 must be scheduled concurrently.

Minor in Physical Education

20 semester hours in Physical Education and 4 semester hours in cognate areas.

Required Courses:

Men—P. E. 30; P. E. 61, 63, 65, 67 (2-6*) P. E. 113; P. E. 101 or 103.

Women—P. E. 30; P. E. 62, 64, 66, 68, (2-6*); P. E. 114 or 116; P. E. 124 or 126.

Elective Courses:

Men and women—P. E. 78, 100; P. E. 123; P. E. 125; P. E. 140; P. E. 160; P. E. 180; P. E. 190; Hea. 110; Hea. 120; Rec. 30; Rec. 40; Rec. 100; Rec. 150.

If planning to teach, the cognate courses for men should be Hea. 40 and Hea. 50; for women, Hea 50 and Hea. 120. Men should include P. E. 123 or P. E. 125 if planning to coach.

NOTE: To be certified to teach in Maryland, 30 semester hours are required in this area, including the following or equivalent: Zool. 14, 15; Hea. 50; P. E. 100, 140; Ed. 145 and Ed. 148 including at least 25 hours of student teaching.

Dance Major

Students interested in dance may major in this area with a B.S. degree awarded in Physical Education, concentration in dance.

Minor in Dance

A total of 20 credit hours is required, of which 15 to 17 hours must be in Dance, and 3 to 5 hours in a cognate area.

Required Courses

P. E. 2, 4 or 55; 50, 52, 54, 56, 58, 60, 70, 80; 110 or 55; 182 or 92.

Recommended Courses

Sp. 8, 14 15, 16, 113; Music 1, 7, 8, 16, 121; Pr. Arts. 1, 2; Art. 2, 9, 11, 100, 101; Eng. 157; P. E. 90, 100; C. Ed. 115, 116, 117; Rec. 30, 100, 120.

Suggested Minors For the Dance Major

Music, Physical Education, Recreation, Split Sociology-Psychology, Speech, and Split Recreation-Sociology.

Special Preparation for Elementary School Physical Education

Men and Women physical education major students who desire to prepare for positions in Elementary School Physical Education should elect the following courses designed for SPECIAL PREPARATION FOR THE ELEMENTARY SCHOOL LEVEL: P. E. 55, Elementary School Rhythmic Activities (2 credits); P. E. 120, Physical Education for the Elementary School (3 credits); P. E. 195, Organization and Administration of Elementary School Physical Education (3 credits). Beginning with the school year 1955-56 these courses will be offered each semester.

Recreation

The increased amount of leisure time existent in our society because of the rapid development of modern civilization, and the imperative need for guidance in the wise use of that leisure time has made us cognizant of the need for trained recreation leaders.

This curriculum therefore is designed to meet the needs of students who wish to qualify for the many positions in the field of recreation, and the needs of those students who desire a background of culture and skills which will enable them to render distinct contributions to community life. The College draws upon various other departments and colleges within the University for courses to balance and enrich its offerings for its recreation major students.

Majors in recreation also have opportunity for observation and practical experiences in local recreation and agency programs, in those programs of metropolitan Washington and Baltimore, and in various programs of the Armed Forces.

MEN

Recreation Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Sp. 1—Public Speaking.....	2	....
Sp. 4—Voice and Diction.....	....	3
Zool. 1—General Zoology.....	....	4
P. E. 30—Introduction to Physical Education, Recreation, and Health	3	....
P. E. 60—Rhythmic Analysis and Movement.....	1	....
P. E. 59—Skills in Folk, Square, and Social Dances.....	....	1
P. E. 61, 63, 65, or 67—Sport Skills and Gymnastics (see note below)	2	2
Rec. 10—Recreation Orientation.....	0	0
A. S. 1, 2—Basic Air Force R. O. T. C.....	3	3
Total.....	17	19
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Sp. 10—Group Discussion.....	....	2
Zool. 16—Human Physiology (or Bot. 1—General Botany).....	4	....
Hea. 50—First Aid and Safety.....	....	2
Pr. Arts 1—Design.....	3	....
Psych. 1—Introduction to Psychology.....	....	3
Rec. 30—History and Introduction to Recreation.....	2	....
Rec. 40—Camp Counseling (or Rec. 150—Camp Management if experienced) .....	....	3
A. S. 3, 4—Basic Air Force R. O. T. C.....	3	3
Total.....	18	19
<i>Junior Year</i>		
*Basic Academic Sequence (9 hours).....	3-6	3-6
Cr. 2—Simple Crafts.....	2	....
Mus. 7—Fundamentals of Music.....	2	....
P. E. 113, 123 or 125—Methods and Materials for Secondary Schools or Coaching Athletics (see note).....	2-3 or 2-3	....
Rec. 100—Co-recreational Games and Programs.....	2	....
Rec. 110—Nature Lore.....	....	2
Rec. 120—Program Planning.....	3	....
Soc. 2—Principles of Sociology.....	....	3
Sp. 113—Play Production.....	....	3
Electives	0-2	3
Total.....	16-18	16-19

*The basic sequence encourages a student to pursue his minor in an academic field, preferably sociology-psychology.

(NOTE: Choice of activities depends upon student's background and interest.)

	Semester	
	I	II
<i>Senior Year</i>		
H. D. 100, 101—Principles of Human Development I, II.....	3	3
P. E. 101 or 103—Organization and Officiating in Intramurals..	2	or 2
Rec. 140—Observation and Service in Recreation (field work)....	....	5
Rec. 180—Leadership Techniques and Practices.....	3	....
Rec. 190—Organization and Administration of Recreation.....	....	3
Soc. 118—Community Organization.....	....	3
Electives	7	4-6
Total.....	15	16

WOMEN

<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	3	....
Sp. 1—Public Speaking.....	2	....
Sp. 4—Voice and Diction.....	....	3
Zool. 1—General Zoology.....	....	4
Hea 40—Personal and Community Health.....	....	3
P. E. 30—Introduction to Physical Education, Recreation, and Health	3	....
P. E. 40—Basic Body Controls.....	1	....
P. E. 50—Rhythmic Analysis and Movement.....	1	....
P. E. 52—Modern Dance.....	....	1
P. E. 56—Skills and Methods in Folk and Square Dance.....	....	1
P. E. 62, 64, 66 or 68—Elementary Techniques of Sports and Gymnastics (see note).....	2	or 2
Rec. 10—Recreation Orientation.....	0	0
Total.....	16-18	15-17

<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Sp. 10—Group Discussion.....	....	2
Hea. 50—First Aid and Safety.....	....	2
P. E. 62, 64, 66 or 68—Elementary Techniques of Sports and Gymnastics (see note).....	2	or 2
P. E. 72, 74, 76 or 78—Elementary, Intermediate and Advanced Swimming, Diving and Life Saving; Methods of Teaching Aquatics (see note).....	1-2	or 1-2
Pr. Arts 1—Design.....	3	....
Psych 1—Introduction to Psychology.....	....	3
Rec. 30—History and Introduction to Recreation.....	2	....
Rec. 40—Camp Counseling (or Rec. 150—Camp Management if experienced) .....	....	3
Zool. 16—Human Physiology (or Bot. 1—General Botany).....	4	....
Total.....	16-18	16-18

NOTE: Choice of activities depends upon student's background and interest.

	Semester	
	I	II
<i>Junior Year</i>		
*Basic Academic Sequence (9 hours).....	3-6	3-6
Cr. 2—Simple Crafts.....	2	....
Mus. 7—Fundamentals of Music.....	2	....
P. E. 114, 116, 124 or 126—Methods in Physical Education for Secondary Schools, Practicum in Leadership (see note).....	2-3	or 2-3
Rec. 100—Co-recreational Games and Programs.....	2	....
Rec. 110—Nature Lore.....	....	2
Rec. 120—Program Planning.....	3	....
Soc. 2—Principles of Sociology.....	3	....
Sp. 113—Play Production.....	....	3
Electives .....	....	3
Total.....	17-18	13-17

Senior Year

H. D. Ed. 100, 101—Principles of Human Development I, II....	3	3
Rec. 130—Leadership Techniques and Practices.....	3	....
Rec. 140—Observation and Service in Recreation (field work)...	....	6
Rec. 190—Organization and Administration of Recreation.....	....	3
Soc. 118—Community Organization.....	....	3
Electives	9	3
Total.....	15	16

NOTE: Choice of activities depends upon student's background and interest.

Minor in Recreation

18 semester hours in Recreation and 6 semester hours in cognate areas.

Required Courses:

10 hours in Rec. 30, 40, 120, 180, or 190; Rec. 100; Soc. 118.

6 hours of work in areas of the recreational skills—nature, arts and crafts, speech and dramatics—but NOT in the area of the student's major.

2 hours of work in the areas of swimming, sports and dance skills: (men)—P.E. 50, 59, 61, 63, 65, 67, 113, 123, 125; (women)—P.E. 40, 50, 52, 54, 56, 58, 62, 64, 66, 68, 72, 74, 76, 78, 114, 116, 124, 126.

OR other courses approved by the student's adviser and the various departments involved, depending upon the student's interest and background.

Elective Courses:

6 hours in cognate areas of sociology, psychology, etc., on approval of the student's adviser.

Recommended Elective Courses:

Art 100, 101; Astron. 1, 2; C. Ed. 112, 116, 117; Cr. 3, 5, 6, 20, 21, 30, 31, 40, 41, 198; Ed. 52, 147; Ind. Ed. 2, 9; Journ. 10; Music 1, 4, 5, 10, 50; P. E. 180; Pr. Arts 38 or 39; Psych. 121, 125, 126; R. Ed. 114, 150; Soc. 13, 62, 113, 131, 153; Sp. 101, 129, 130.

*The basic academic sequence encourages a student to pursue his minor in an academic field, preferably sociology-psychology.

Health Education

This curriculum is designed to prepare the student to give leadership in the development of the school health education program including (1) health services (2) healthful environment, and (3) health teaching. Graduates in this area have placement opportunities in schools, colleges, and in public and private health agencies. The minor is planned to be particularly suitable for students who are majoring in physical education, education, home economics, and nursery school-kindergarten education.

Health Education Curriculum

Men

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P. 1—American Government .....	....	3
Zool. 1—General Zoology .....	....	4
Sp. 7—Public Speaking	2	....
Hea. 10—Orientation to Health Education.....	....	1
Hea. 30—Introduction to Physical Education, Rec., & Health..	3	....
P. E. 1, 3—Conditioning and Fitness Exercises.....	1	1
Chem. 11, 13—General Chemistry	3	3
A. S. 1, 2—Basic Air Force R.O.T.C.....	3	3
Total	18	18
<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Hea. 40—Personal and Community Health.....	3	....
Health 50—First Aid and Safety.....	....	2
Hea. 70—Safety Education .....	....	3
P. E. 5, 7—Sports and Other Recreational Activities.....	1	1
A. S. 3, 4—Basic Air Force R.O.T.C.....	3	3
Electives	2	....
Total.....	19	19
<i>Junior Year</i>		
Bact. 1—General Bacteriology	4	....
Bact. 105—Epidemiology and Public Health.....	....	4
Nut. 10—Elements of Nutrition.....	....	3
Ed. 150—Educational Measurement or		
Hea. 180—Measurement in Physical Education and Health..	2-3	....
Hea. 110—Introduction to School & Community Health Services.	2	....
Hea. 120—Methods & Materials of School Hea. Instruction.....	....	3
H. D. Ed. 100, 101—Principles of Human Development I & II..	3	3
Psych. 1—Introduction to Psychology.....	3	....
Psych. 5—Mental Hygiene .....	....	3
Electives	3	2
Total	17-18	18

	Semester	
	I	II
<i>Senior Year</i>		
Hea. 140—Curriculum, Instruction & Observation.....	3	....
Hea. 150—Health Problems of the School Child.....	....	3
Ed. 110—The Teacher and School Administration or Hea. 190—Administration and Supervision of School Health Education	2-3	....
Ed. 145—Principles of High School Teaching.....	3	....
Ed. 148—Student Teaching in the Secondary Schools.....	8	....
Electives .....	....	12
Total.....	16-17	15

NOTE: When Ed. 148 is taken, Ed. 145, P. E. 140 and Hea. 190 must be scheduled concurrently.

Women

<i>Freshman Year</i>		
Eng. 1, 2—Composition and American Literature.....	3	3
Soc. 1—Sociology of American Life.....	3	....
G. & P.—American Government.....	....	3
Zool. 1—General Zoology .....	....	4
Sp. 7—Public Speaking	2	....
Hea. 10—Orientation to Health Education.....	....	1
Hea. 30—Introduction to Physical Education, Recreation & Health	3	....
P. E. 2, 4—Basic Skills of Sports and Rhythms.....	1	1
Chem. 11, 13—General Chemistry.....	3	3
Electives	3	3
Total.....	18	18

<i>Sophomore Year</i>		
Eng. 3, 4—Composition and World Literature.....	3	3
Hist. 5, 6—History of American Civilization.....	3	3
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Hea. 40—Personal and Community Health.....	3	....
Hea. 50—First Aid and Safety.....	....	2
Hea. 70—Safety Education .....	....	3
P. E. 6, 8—Selected Sports and Dance.....	1	1
Electives	3	2
Total.....	17	18

<i>Junior Year</i>		
Bact. 1—General Bacteriology	4	....
Bact. 105—Epidemiology and Public Health.....	....	4
Nut. 10—Elements of Nutrition.....	....	3
Ed. 150—Educational Measurement or Hea. 180—Measurement in Physical Education and Health..	2-3	....
Hea. 110—Introduction to School and Community Health Services	2	....
Hea. 120—Methods & Materials of School Health Instruction....	....	3
H. D. Ed. 100, 101—Principles of Human Development I & II..	3	3
Psych. 1—Introduction to Psychology	3	....
Psych. 5—Mental Hygiene .....	....	3
Electives	3	2
Total.....	17-18	15

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Hea. 140—Curriculum, Instruction and Observation.....	3	....
Hea. 150—Health Problems of the School Child.....	....	3
Ed. 110—The Teacher and School Administration or Hea. 190—Administration and Supervision of School Health Education	2-3	....
Ed. 145—Principles of High School Teaching.....	3	....
Ed. 148—Student Teaching in the Secondary Schools.....	8	....
Electives .....	....	12
Total.....	16-17	15

NOTE: When Ed. 148 is taken, Ed. 145, Ed. 140 and Hea. 190 must be scheduled concurrently.

Minor in Health Education

13 semester hours in Health Education and 12 semester hours in related areas.

Required Courses

Hea. 2, 4 or Hea. 40 (women); Hea. 40 (men); Hea. 50 (2), Hea. 110 (2), Hea. 120 (3) and Hea. 150 (3).

Elective courses in related areas:

6 semester hours of biological sciences and 6 semester hours of psychology or human development.

Minor in Safety Education

Students wishing to obtain a minor in Safety Education and become certified to teach Driver Education in junior and senior high schools should take the following courses: Hea. 50 (2), Hea. 70 (3), Hea. 80 (3), Hea. 105 (3) and Hea. 145 (3).

Pre-Physical Therapy (Revised curriculum, September 1956)

The first three years of the course are planned as studies in liberal arts and specific sciences which are basic for courses taken in the last year of specialization. The first three years will be spent on the campus of the University of Maryland at College Park. The last year will be spent at an Approved School of Physical Therapy affiliated with the University of Maryland. Upon completion of this work, the student will return to the University of Maryland for a review of his records. If the records are satisfactory, a degree will be awarded by the University of Maryland. The student will receive a Certificate of Proficiency in Physical Therapy from the affiliated school.

Completion of the three year Physical Therapy curriculum in itself does not guarantee admission to the Affiliated Approved School of Physical Therapy. An acceptable student must satisfy admission standards set up by the Committee on Admissions. A grade of "D" or less in any of the required pre-requisite courses (zoological, physical and social sciences) is not acceptable. In addition, to the academic regulations, the student has to satisfy the standards of personal qualification and physical health.

All candidates are required to take the Graduate Record Examination prior to admission to an Approved Affiliated School.

During the summer months of the Freshman, Sophomore, and Junior year, students are urged to obtain practical field experiences in Physical Medicine and Rehabilitation Units in public and private agencies, and in a Camping Program for Handicapped Children. Such experience will be arranged with the adviser.

The degree of Bachelor of Science in Pre-Physical Therapy is conferred upon students who have met the requirements of the University of Maryland and the specific conditions of the curriculum as herein prescribed.

The affiliated schools are Boston University, D. T. Watson School of Physiatrics, and University of Colorado, Medical School.

Pre-Physical Therapy Curriculum

MEN

<i>Freshman Year</i>	Semester	
	I	II
English 1, 2—Composition and American Literature.....	3	3
Sociology 1—Sociology of American Life.....	3	....
G. & P. 1—American Government .....	....	3
Chemistry 1, 2—General Chemistry.....	4	4
Zool. 1—General Zoology.....	....	4
Psych. 1—Introduction to Psychology.....	3	....
Speech 18, 19*.....	1	1
P. T. 10, 11—Physical Therapy Orientation.....	0	0
P. E. 1, 3—Conditioning and Fitness Exercises.....	1	1
A. S. 1, 2—Basic Air Force R.O.T.C.....	3	3
Total.....	18	19
<i>Sophomore Year</i>		
English 3, 4—Composition and World Literature.....	3	3
Zoology 14, 15—Human Anatomy and Physiology.....	4	4
Physics 1, 2—Elements of Physics.....	3	3
History 5, 6—History of American Civilization.....	3	3
P. T. 20, 21—Foundations of Physical Therapy.....	1	1
P. T. 5,** 7—Sports and Other Recreational Activities.....	1	1
A. S. 3, 4—Basic Air Force R.O.T.C.....	3	3
Speech 10—Group Discussion .....	....	2
Total.....	18	20
<i>Junior Year</i>		
Psychology 5, 121*—Mental Hygiene	3	3
Speech 105—Pathology	3	....
Sociology 131*—Introduction to Social Service.....	....	3
P. E. 100—Scientific Bases of Movement	4	....
P. E. 160—Scientific Bases of Movement Applied .....	....	3
Electives	8	9
Total.....	18	18

*Note: Selection of these courses will depend upon student's background.

** May substitute P. E. 50 for P. E. 5 for Men.

Pre-Physical Therapy Curriculum

WOMEN

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
English 1, 2—Composition and American Literature.....	3	3
Sociology 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Chemistry 1, 2—General Chemistry	4	4
Zoology 1—General Zoology.....	....	4
Health 2, 4—Personal and Community Health.....	2	2
Speech 18, 19—Introductory Speech.....	1	1
P. T. 10, 11—Physical Therapy Orientation.....	0	0
P. E. 2, 4**—Basic Skills of Sports and Rhythms.....	1	1
Psychology 1—Introduction to Psychology.....	3	0
Total.....	17	18
<i>Sophomore Year</i>		
English 3, 4—Composition and World Literature.....	3	3
History 5, 6—History of American Civilization.....	3	3
Zoology 14, 15**—Human Anatomy and Physiology.....	4	4
**Physics 1, 2—Elements of Physics.....	3	3
P. E. 6, 8—Basic Skills of Sports and Rhythms.....	1	1
P. T. 20, 21—Foundations of Physical Therapy.....	1	1
Psychology 5—Mental Hygiene.....	3	....
Speech 10—Group Discussion .....	....	2
Total	18	17
<i>Junior Year</i>		
Psychology 121*—Social Psychology.....	3	....
Speech 105—Pathology	3	....
Sociology 131*—Introduction to Social Service.....	....	3
P. E. 100—Scientific Bases of Movement.....	4	....
P. E. 160—Scientific Bases of Movement Applied.....	....	3
Electives	8	12
Total.....	18	18
Electives: Languages—French and/or German		
General Physiology 102		
Anthropology		
P. E. 180		

**Note: May substitute Zoology 5 and 20 for Zoology 14 and 15; P. E. 40 and 50 for P. E. 2 and 4 for Women; Geometry and Algebra for Physics 1, 2.

AFFILIATED SCHOOL—OUTLINE OF COURSE PROGRAM

<i>Name of Course</i>	<i>Senior Year—Men & Women</i>	
	<i>I</i>	<i>II</i>
Anatomy	4	4
Physics	2	....
Physiology	3	....
Massage	2	2.5
Medical Lectures	2	....
Massage	2	....
Hydrotherapy .....	....	1
Phototherapy	1	....
Electrotherapy .....	....	3
Bandaging and Nursing.....	1	....
Therapeutic Exercise and Rehabilitation.....	....	5
Pathology .....	....	1.5
Clinical Practice (521 hrs.).....	0	0
Total.....	17	17

SPECIAL INFORMATION

Transfer Students

Only students in good standing as to scholarship and conduct are eligible to transfer under the general University regulations. Basic courses in health, science, and physical activity must be completed, or satisfactory competence demonstrated, before the student will be permitted to enter advanced professional courses. It may be necessary to do additional work to meet these requirements.

Delinquent Students

The University reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his or her health, or to the health of others, or whose conduct is not satisfactory to the authorities of the University.

Guidance

At the time of matriculation each student is assigned to a member of the faculty of the College who acts as the student's academic adviser. The choice of curricula within which the student will major will be made under faculty guidance during the first year in the Introduction to Physical Education, Recreation, and Health course required of all freshmen. Thereafter, the student will confer regularly with the faculty member assigned as his adviser.

Electives

Electives should be planned carefully, and well in advance, preferably during the orientation course the first semester, or with his academic adviser during the second semester. It is important to begin certain sequences as soon as possible to prevent later conflict. Electives may be selected from any department of the University in accordance with a student's professional needs. Electives selected must meet with the approval of the adviser and the Dean of the College.

Equipment

Students will be required to provide individual equipment for certain courses, such as archery, badminton, golf, and tennis.

Uniforms

Suitable uniforms, as prescribed by the College, are required for the activity classes and for student teaching. These uniforms should be worn only during professional activities.

Men—During the freshman and sophomore years, men will wear red and black T-shirts, black trunks, white socks, white gym shoes, supporter and sweat suit. During the junior year, men will purchase full length black pants with gold braid on side and a white jacket, which are required for student teaching.

Women—Tailored maroon shorts, white shirt, ankle socks, and tennis shoes, dance leotard and skirt, and warm-up suit.

For Student Teaching—An appropriate teaching costume will be selected under the guidance of the supervisor of student teaching at the beginning of the junior year.

Minors

It is relatively easy for any student majoring in this College to complete the requirements for a minor as indicated after each major curriculum. Those who plan to teach in the public schools should also qualify in an academic area if possible. This is more difficult with the limited number of elective credits and must be planned carefully in advance, preferably during the freshman year. If it seems advisable, the Dean may waive certain specified courses to allow development of a needed minor, or the student may be able to carry a heavier load if his grade average permits.

For a teaching minor, Education 140 should be taken in the minor field and practice teaching should be divided between the major and minor fields.

Students majoring in Physical Education, Health Education or Recreation should begin preparing for a teaching minor in a subject matter area during his sophomore year, if possible. Many opportunities exist in junior and senior high schools for a combination teacher of physical education and a subject-matter course. It is highly desirable for a student majoring in the professional areas in this College to have a teaching minor in a subject-matter area upon graduation.

English Minor: A minor in English requires 26 semester hours. It includes 12 semester hours in Composition and Literature, 3 semester hours in Advanced American Literature and 11 semester hours of electives.

Social Science Minor: For a minor in this group, 24 semester hours are required as follows: History, 18 semester hours (including one year each of American and European History), Economics, sociology, government, consumer education or geography, 6 semester hours; and 12 semester hours of electives in the social sciences.

Mathematics Minor: For a minor in this area, 20 semester hours are required including the following courses: Math 2—Solid Geometry (2), Math 14—Plane Trigonometry (2), Math 15—College Algebra (3), Math 17—Analytic Geometry (4) and Math 20, 21—Calculus 4, 4). Students who have solid geometry in high school or who pass satisfactorily an examination in this subject need not take Math 2. Electives in mathematics are selected with the assistance of the adviser.

Science Minor: 30 semester hours are required for a minor in this area including the following courses: Chem. 1, 3—General Chemistry (4, 4), Zoology 1—General Zoology (4), Botany 1—General Botany (4), Physics 10, 11—Fundamentals of Physics (4, 4) or Physics 1, 2—Elements of Physics (3, 3). Other courses will be chosen subject to the approval of the student's major adviser and of the science department in which his interest lies.

Minors of 20 semester hours are offered in chemistry, in physics, and in biological sciences. A minor in biology must be supported by a one-year course in chemistry. A minor in physics must be supported by a one-year course in chemistry. A minor in chemistry must be supported by a one-year course in physics.

Speech Minor: A minor of 22 semester hours is offered in Speech. The minimum requirements for this minor are 12 semester hours in addition to the 10 semester hours of departmental requirements in Speech 1, 2, 3, and 4. The 12 semester hours above the departmental requirements must include 6 semester hours of courses numbered 100 or higher. All programs for minors must be approved by the departmental advisor.

Area of Specialization in Elementary School

Physical Education and Health Education

Students enrolled in the College of Education and majoring in elementary education may pursue an area of specialization in elementary school physical education and health education, and thereby qualify for the "Bachelor of Science Certificate in Special Subjects." In order to fulfill the requirements in these areas, elementary education major students should follow the prescribed plan for a major in elementary education. In addition, the following courses should be taken:

Men—P.E. 1, 3 (1, 1), P.E. 5, 7 (1,1) or P.E. 50, 59 (1,1) (See note); Hea. 40 (3), Hea. 50 (2), Hea. 110 (2), Hea. 114 (2); P.E. 55 (2) P.E. 120 (3), P.E. 130 (3), P.E. 191 (3), P.E. 195 (3); Zool. 1 (4), Zool. 14 (4), and Zool. 15 (4).

Women—P.E. 2, 4 (1, 1), P.E. 6, 8 (1, 1) or P.E. 50, 56, 58 (1, 1, 1) (See note); Hea. 2, 4 (2, 2), Hea. 50 (2), Hea. 110 (2), Hea. 114 (2), P.E. 55 (2), P.E. 120 (3), P.E. 130 (3), P.E. 191 (3), P.E. 195 (3), Zool. 1 (4), Zool. 14 (4), and Zool. 15 (4).

NOTE: The University requirement in Physical Education may be fulfilled by professional courses in this college.

Normal Load

The normal load for students in this College is 15 credits per semester,

exclusive of the credits for required military science for men, and health for women. The requirement in physical education for men, and in physical education and health for women are fulfilled by professional courses in the College. Thus the normal load for freshmen and sophomore men is 19 credits; for women 17 credits. No junior or senior may register for more than 19 hours unless he has a "B" (3.0) average for the preceding semester and approval of the Dean of the College.

Freshman and Sophomore Programs

The work of the first two years in this College is designed to accomplish the following purposes: (1) provide a general basic or core education and prepare for later specialization by giving a foundation in certain basic sciences; (2) develop competency in those basic techniques of the motor activities necessary for successful participation in the professional courses of the last two years.

While much of the academic course work will be alike, the technique courses will vary considerably in the different curricula. The core of University requirements should be completed in the first two years in such manner as to justify acceptance as a junior in the desired major. The technique courses must be satisfactorily completed, or competencies demonstrated before the student can be accepted for the advanced courses in methods and in student teaching. It is very important that each requirement be met as it occurs.

Certification

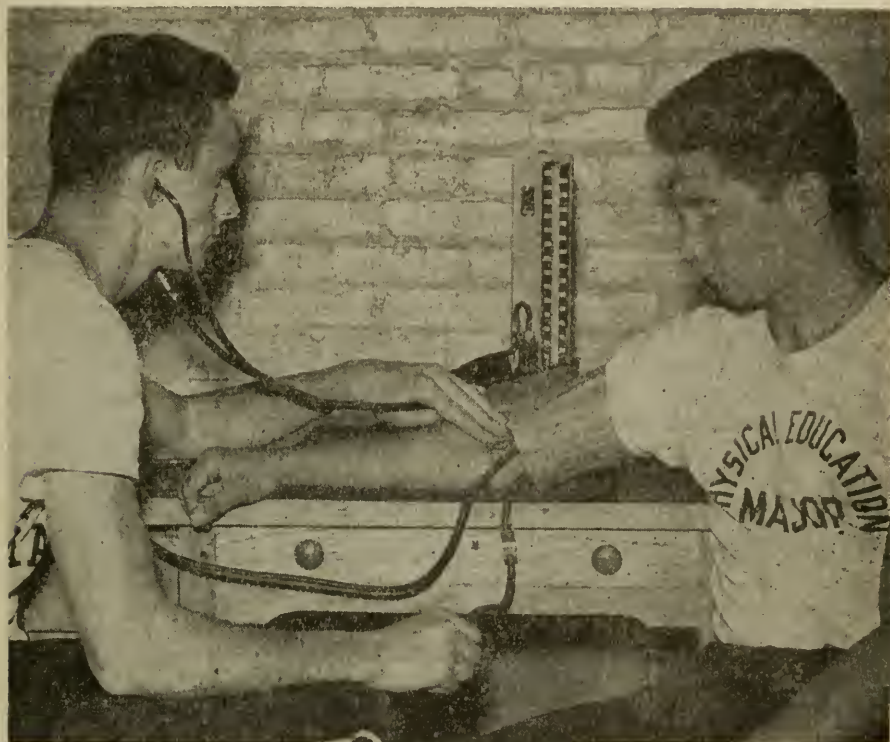
The Maryland State Department of Education certifies for teaching only when an applicant has a tentative appointment to teach in a Maryland county school. No certificate may be secured by application of the student on graduation. Course content requirements for certification are indicated with each curriculum. Certification is specifically limited to graduates who "rank academically in the upper four-fifths of the class and who make a grade of 'C' or better in student teaching." In order to insure the meeting of these requirements, students will not be approved for student teaching except as indicated below. A student intending to qualify as a teacher in Baltimore, Washington, or other specific situations should secure a statement of certification requirements before starting work in the junior year and discuss them with his academic adviser.

Student Teaching

Opportunity is provided for student teaching experience in Physical Education or Health Education, or Health and Physical Education. The student devotes eight weeks during either semester of his senior year to observation, participation, and teaching under a qualified supervising teacher in an approved junior or senior high school in the vicinity of the University. The student progresses to gradual assumption of all of the responsibilities of the supervising teacher. A supervisor from the College of Physical Education, Recreation, and Health visits the student periodically and confers with both the student teacher and the supervising teacher, giving assistance when needed. To be eligible for student teaching, the student must have an accumulative point average of 2.275, must have satisfied the competency requirements in P. E. 61, 63, 65 and 67 (men), P. E. 62, 64, 66 and 68 (women), and must have completed

the following courses: P. E. 100; P. E. 113, (men); P. E. 114, 116, 124, 126 (women); and P. E. 140.

For students who are unable to teach on the entire day schedule, special schedule arrangements may be made upon application to the Director of Student Teaching.



Physical education major students conduct experimental work on physical fitness in the well-equipped research laboratory.

GRADUATE STUDIES

Graduate work leading to the Master of Arts degree and the Doctor of Philosophy degree is conducted in this department in accordance with the procedures and requirements of the Graduate School. Graduate work leading to the Doctor of Education degree is conducted in cooperation with the department of education in accordance with the procedures and requirements of the Graduate School.

For graduate study a student must have earned at least 16 semester credits in education at the undergraduate level, and hold a Bachelor's or Master's degree

from a college or university of recognized standing. The committee on Master's programs may interpret this requirement so that foundation work in fields other than education may be accepted in cases of graduate students not preparing for school work. The student must also satisfy the graduate Dean as to his ability to do graduate work.

Registration

A graduate student must matriculate in the Graduate School. Application for admission to the Graduate School should be made prior to date of registration on blanks obtained from the office of the Dean of the Graduate School. For further instructions a student should consult the Graduate School catalog.

Master's Degrees

A graduate student may matriculate for a Master of Arts degree. For requirements for this degree, the student should consult both the Graduate School catalog and the special material issued by this department. On matriculation, the student should select a faculty adviser from the graduate faculty of the Department of Physical Education, Recreation and Health.

Undergraduate requirements for admission to candidacy for a graduate degree in Physical Education are: human anatomy and physiology; physiology of exercise; kinesiology; adapted and special physical education; sport skills; methods; human development measurement; principles of physical education; administration; and student teaching. In cases where a student has had successful experience in teaching Physical Education, the prerequisites of sport skills, methods, and student teaching may be waived. Undergraduate prerequisites in Recreation are: psychology; sociology; principles of recreation; administration; basic sciences; recreational activities; and practical experience. Undergraduate prerequisites in Health Education are: biological sciences; bacteriology; human anatomy; physiology; chemistry; psychology; measurement; administration; principles of health; and field work.

Every graduate student majoring in Physical Education, Recreation, or Health Education is required to take the following courses (or transfer their equivalent) before taking the qualifying examination: P. E., Rec. or Hea. 201, Foundations in Physical Education, Recreation, and Health; P. E., Rec. or Hea. 210, Methods and Techniques of Research in Physical Education, Recreation and Health; and or P. E., Rec. or Hea. 220, Quantitative Methods; P. E., Rec. or Hea. 230, Survey Techniques in Physical Education, Recreation and Health. In addition, every graduate student must register for and complete P. E., Rec. or Hea. 200, Seminar in Physical Education, Recreation, and Health at some time during his graduate career.

Doctor's Degrees

Programs leading to the Doctor of Philosophy degree are administered for the Graduate School by this department. For requirements for the Doctor of Philosophy degree, the student should consult both the Graduate School catalog and the statement of policy relative to doctoral programs issued by this department. If the student has not already made arrangements with a member of the graduate faculty to advise him, he should consult with the chairman of

the Committee on Candidacy regarding a proper adviser. Programs leading to the Doctor of Education degree are administered for the Graduate School in cooperation with the department of education.

For requirements for the Doctor of Education degree, the student should consult both the Graduate School catalog and the statement of policy relative to doctoral programs issued by the department of education.

PHYSICAL EDUCATION REQUIREMENTS FOR MEN AND WOMEN

All undergraduate men and women students classified as freshmen or sophomores, who are registered for more than six semester hours of credit, are required to enroll in and successfully complete four prescribed courses in physical education and/or athletics for a total of four semester hours of credit. The successful completion of these courses is required for graduation. These courses must be taken by all eligible students during the first two years of attendance at the University, whether they intend to graduate or not. Men and women who have reached their thirtieth birthday are exempt from these courses. Students who are physically disqualified from taking these courses must enroll in adaptive courses for which credit will be given. Transfer students who do not have credit in these courses, or their equivalent, must complete them or take them until graduation, whichever occurs first. Students with military service may receive credit for these courses by applying to the Air Force R.O.T.C. Records Office.

Students majoring or minoring in physical education, recreation, health education, physical therapy, or specializing in elementary school physical education and health education, may meet these requirements by special professional courses.

Equipment

Students will be required to provide individual equipment for certain elective courses, such as archery, badminton, golf, and tennis.

MEN'S PROGRAM

The program of physical education offers the college student an opportunity to acquire skills, knowledges, and appreciations in a variety of physical and sports activities, which will contribute now and in the future to more efficient physiological functioning, effective movement, improved human relations, and worthwhile use of leisure time.

All entering freshmen are required to complete P. E. 1, Orientation to Physical Education. They must then select an activity from each of the three activity areas indicated below. This selection should be made on the basis of each student's individual needs and interests. Students who fail the swimming classification test, one of the Orientation to Physical Education requirements, are required to enroll in a beginning swimming class.

In each of the three areas, students may select the following activities:

Developmental and Combative Sports—Gymnastics, soccer and boxing; track and field and wrestling; and weight training.

Team and Individual Sports—Softball and basketball; speedball and tumbling; tennis and volleyball; touch football and volleyball; beginning swimming, and advanced swimming and life saving.

Recreational Activities—Archery and bowling; badminton and fishing; camping and canoeing; camping and outdoor activities; folk and square dancing, golf, recreational games, sailing, social dance, and tennis.

All male students enrolled in required physical education courses will wear the following uniform: red and black T-shirt, black trunks, white socks, white gym shoes, supporter, and white sweatshirt. All of the above items will be furnished by the University except the gym shoes and the sweatsuit. Gym shoes and sweatsuits can be purchased by the students at the Student's Supply Store in the Student Union Building. Each student will be furnished a wire basket for his uniform and space for storing it in the locker room of the Activities Building.

Women's Program

Through participation in a variety of activities, freshman and sophomore women have the opportunity to acquire skills, knowledge, and attitudes which will contribute to personal enjoyment and better physical efficiency.

Students are required to complete a unit of work in a team or individual sport, dance, orientation activities, and swimming. They enroll in P. E. 2, 4, 6, or 8. The swimming requirement may be met either by completing one of the courses or by successfully passing the proficiency test administered at the end of each semester.

Activities within the specified areas may be selected according to individual interests and needs. Students are urged to develop new skills as well as to select those in which they would like to have further experience. Each student may choose from the following activities:

Individual Sports—Archery, badminton, camping, canoeing, bowling, fishing, golf, sailing, tennis.

Team Sports—Basketball, hockey, softball, speedball, volleyball.

Dance—Folk and square, modern, social.

Orientation Activities.

Swimming—Beginning, intermediate, and advanced; life saving; synchronized.

Costume

Each woman student is expected to provide herself with gymnasium costume consisting of dark green gabardine shorts, white slip-over blouse, white socks and tennis shoes. Special sandals will be worn in modern dance classes. These may be purchased at the Maryland Book Exchange.

Locks and Lockers

A locker and lock are assigned to each girl at the first meeting of her class upon presentation of her University fee receipt. At the close of the last class each one is responsible for cleaning out her locker and returning the lock.

Health Education Requirements

All freshmen women are required to satisfactorily complete two semesters of Personal and Community Health (Hea. 2, 4) for graduation. Transfer

students who do not have credit in these courses, or their equivalent, must complete them or take them until graduation, whichever occurs first. This year course is designed to meet the interests and the needs of college women. It consists of units which attempt to form up-to-date scientific background for developing attitudes, habits, and skills among students that will contribute to better everyday living. Audio-visual aids, readings, reports, field trips, and special lectures help to enrich the class discussions. The University environment, the personal and group adjustments which the students must make are considered a vital part of these courses.

Women who have reached their thirtieth birthday are exempt from these courses.

Preinkert Field House, pictured below, is the center of Physical Education for Women. The swimming pool, dance studio, gymnasium and departmental offices are located here.



REQUIRED COURSES FOR ALL FRESHMEN AND SOPHOMORES*

P. E. courses open only to men are given in odd numbers.

P. E. courses open only to women have even numbers.

P. E. courses ending in zero are open to both men and women.

Physical education fee per semester (to be charged any student registered for any physical activity course), \$3.00.

A. Physical Education

A student having a physical handicap which prevents participation in the regular required or service program will be assigned to an adapted activity suitable to his physical capacity. This refers to P. E. 1 to 8, inclusive.

***P. E. 1. Orientation to Physical Education (1).** Three hours a week. First and second semesters. (Laboratory fee, \$3.00).

The purpose of this course is to give the student a better understanding and appreciation of the place of sports and physical education in the American way of life. It is designed to introduce the student to a variety of sport skills as indicated in each of the three areas: (1) Developmental and Combative Sports, (2) Team and Individual Sports, (3) Recreational Activities. In addition, each student is acquainted with the fitness, health, social, and leisure-time values inherent in continued participation in sports and other physical education activities.

P. E. 2, 4. Basic Skills of Sports and Rhythms (1, 1). Three hours a week. First and second semesters. (Laboratory fee, \$3.00).

Required of all freshman women. Instruction and practice in fundamentals of sports, rhythms, body mechanics, and swimming.

P. E. 3. Developmental and Combative Sports (1). Three hours a week. First and second semesters. Prerequisite, P. E. 1. (Laboratory fee, \$3.00).

Students may elect from the following: gymnastics; boxing and soccer; track and field and wrestling; weight training.

***P. E. 5. Team and Individual Sports (1).** Three hours a week. First and second semesters. Prerequisite, P. E. 1. (Laboratory fee, \$3.00).

Students may elect from the following: softball and basketball; speedball and tumbling; tennis and volleyball; touch football and volleyball; beginning swimming; and advanced swimming and life saving.

P. E. 6, 8. Selected Sports and Dance (1, 1). Three hours a week. First and second semesters. (Laboratory fee, \$3.00).

Sophomores may elect from the following: Archery, badminton, fishing, basketball, bowling, camping, folk and square dance, modern dance, social dance, golf, hockey, softball, speedball, swimming, tennis, volleyball, sailing and canoeing.

***P. E. 7. Recreational Activities (1).** Three hours a week. First and second semesters. Prerequisite, P. E. 1. (Laboratory fee, \$3.00).

*Physical activities required by freshmen and sophomores in all colleges except those majoring in physical education, recreation, and health.

Students may elect from the following: Archery and bowling, badminton and fishing, camping and canoeing, golf, modern dance, recreational games, sailing, social dance, and square dance.

B. Health Education (Required for all women)

Hea. 2, 4. Personal and Community Health (2, 2) First and second semesters.

A course concerned with health principles as applied to the individual as well as with health of people as a group and with organizations, both private and governmental, which attempt to improve health conditions.

PHYSICAL EDUCATION, RECREATION, AND HEALTH PROFESSIONAL COURSES

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designed by numbers as follows:

1 to 99: courses for undergraduates.

100 to 150: courses for advanced undergraduates.

150 to 199: courses for advanced undergraduates and graduates.

200 to 299: courses for graduates only.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

P. E. courses open only to men are given in odd numbers.

P. E. courses open only to women have even numbers.

P. E. courses ending in zero are open to both men and women.

Physical education fee per semester (to be charged any student enrolled in any physical activities course), \$3.00.

A. Physical Education

P.E. S10. Physical Education Activities (1-6). Summers only.

Instruction and practice in selected sports; tennis, badminton, archery, golf, swimming, and square dance. (Laboratory fee, \$3.00).

Note. (1). Not available for credit to Physical Education Majors.

Note. (2). Non-majors in Physical Education may use this credit to fulfill graduation requirements in Physical Education.

P. E. 30. Introduction to Physical Education, Recreation, and Health (3). First and second semesters.

Development of understanding and appreciation of the historic and significant purpose and place of each of the specialized areas in general education. A study of the

educational and personal requirements and opportunities of a career in each professional area. Students will be acquainted with the status and trends of each area.

P.E. 40. Basic Body Controls (1). Three hours a week. First and second semesters. Second semester arranged for benefit of transfers.

This course is designed to acquaint the student with the fundamental principles and techniques of body movement, and to provide for practical application in sports, rhythmic and gymnastic activities. In addition, the course introduces balanced posture in standing, walking, sitting and work skills, as well as relaxation. (Laboratory fee, \$3.00).

P. E. 50. Rhythmic Analysis and Movement (1). Three hours a week. First and second semesters..

The development of rhythmic sensitivity through an analysis of rhythm and its application to movement. Percussion instruments will be used. (Laboratory fee, \$3.00).

P. E. 52, 54. Dance Techniques (1, 1). Three hours a week. First and second semesters.

Introduction to techniques of modern dance, with simple approaches to composition. Laboratory fee, \$3.00).

P. E. 55. Elementary School Rhythmic Activities (2). First and second semesters and summer.

This course will survey the various types of rhythmic activities suitable for use in the elementary school. Basic rhythms, singing games, and folk and square dancing will be considered in terms of their use at the various grade levels as well as the best accepted methods of teaching these activities.

P. E. 56. Skills and Methods in Folk and Square Dance (1). One lecture and three laboratories a week. First and second semesters.

This course is designed to acquaint the student with basic skills in Folk and Square Dance and to give theory to class organization, analysis, teaching techniques, and practice in "calling" for junior and senior high school programs. (Laboratory fee, \$3.00).

P. E. 58. Skills and Methods in Social Dance (1). One lecture and three laboratories a week. First and second semesters.

This course is designed to acquaint the student with basic skills in Social Dance and to give theory of class organization, analysis and teaching techniques for junior and senior high school programs. (Laboratory fee, \$3.00).

P. E. 59. Skills in Folk, Square and Social Dance (1). Three hours a week. First and second semesters. Prerequisite, P. E. 50.

This course is designed to acquaint the student with the basic skills in Social, Folk, and Square Dance for use in schools and recreational groups. (Laboratory fee, \$3.00).

P. E. 60. Dance Composition (1). Three hours a week. First and second semesters.

The study of dance content and relationship to form and style. Theory and laboratory problems in composition. Modern dance forms. (Laboratory fee, \$3.00).

P.E. 61, 63. Sport Skills and Gymnastics (2, 2). Six hours a week. First and second semesters.

Progressive techniques and practice of skills in apparatus, calisthenics, cross-country, dual recreation activities, mass games and relays, soccer, touch football, track, tumbling, and volleyball. (Laboratory fee, \$3.00).

P.E. 62, 64. Elementary Techniques of Sports and Gymnastics (2, 2). Six hours a week. First and second semesters.

Progressive techniques and practice of seasonal sports, stunts, tumbling, and gymnastic exercises. (Laboratory fee, \$3.00).

P. E. 65. 67. Sport Skills and Gymnastics (2, 2). Six hours a week. First and second semesters.

Progressive techniques and practice of skills in basketball, bowling, swimming, dual net games, golf, lacrosse, softball, tennis and wrestling. (Laboratory fee, \$3.00).

P.E. 66, 68. Techniques of Sports (2, 2). Six hours a week. First and second semesters. Prerequisite, P. E. 40, 62, 64.

Techniques of selected team and individual sports. (Laboratory fee, \$3.00).

P. E. 70. Intermediate Modern Dance (2). Four laboratory periods a week. First and second semesters. Prerequisites, P. E. 52, 54 or permission of instructor.

Modern dance techniques. Compositional problems. (Laboratory fee, \$3.00).

P. E. 71. Elementary Swimming (1). First and second semesters.

Progressive techniques and practice of elementary swimming. Course includes basic and intermediate swimming instruction. American Red Cross Beginner, Intermediate, and Swimmer certificates will be issued to those successfully completing the course. (Laboratory fee, \$3.00).

P. E. 72. Elementary Swimming and Diving (1). Three hours a week. First and second semesters.

Progressive techniques and practice in the elementary phases of swimming and diving, designed to make the student self-sufficient in deep water. (Laboratory fee, \$3.00).

P. E. 73. Advanced Swimming (1). First and second semesters. Prerequisite, P. E. 71, or equivalent.

Progressive techniques and practice of advanced swimming and water safety. American Red Cross Senior Life Saving certificates will be issued to those successfully completing the course. (Laboratory fee, \$3.00).

P. E. 74. Intermediate Swimming and Diving (1). Three hours a week. First and second semesters. Prerequisite, P. E. 72, or equivalent.

Continuation of the techniques in P. E. 72 to include proficiency in the standard swimming strokes and the ability to perform a fully coordinated standing dive. (Laboratory fee, \$3.00).

P. E. 76. Advanced Swimming and Diving (1). Three hours a week. First and second semesters. Prerequisites, P. E. 72 and P. E. 74, or equivalent.

Continuation of the techniques of P. E. 74, to include more advanced swimming strokes, fancy diving, water stunts, and synchronized swimming. (Laboratory fee, \$3.00).

P. E. 77. Methods of Teaching Aquatics (2). One lecture and three laboratory hours a week. First and second semesters. Prerequisite, P. E. 73, or equivalent.

This course is designed to train students for aquatic leadership in schools, camps, and clubs. Course includes teaching methods, administration, facilities and equipment, and advanced swimming techniques. American Red Cross Instructor's certificate in Swimming and Life Saving will be issued to those successfully completing the course. (Laboratory fee, \$3.00).

P. E. 78. Methods of Teaching Aquatics (2). One lecture and three laboratory hours a week. First and second semesters. Prerequisites, P. E. 74, 76, or equivalents.

This course is designed to prepare the students to teach swimming and diving, administer swimming pools, conduct recreational aquatic activities, and direct camp aquatic programs. (Laboratory fee, \$3.00).

P. E. 80. Advanced Modern Dance (2). Four laboratory periods a week. First and second semesters. Prerequisites, P. E. 52, 54, 70, or permission of the instructor.

Continuation of P. E. 70 in more advanced form. (Laboratory fee, \$3.00).

P. E. 90. Workshop (1). Three laboratory hours a week. First and second semesters. Permission of instructor only.

Planning, composition, and presentation of demonstrations. A total of 6 credits may be earned. (Laboratory fee, \$3.00).

P. E. 92. Percussion Accompaniment and Music for Dance (2). First and second semesters. One lecture and two laboratory hours per week.

Techniques of percussion playing and its use as dance accompaniment are emphasized. Learning to use the instruments in composition and improvisation is stressed. Music for dance and dance notation is included in the course.

P. E. 100. Scientific Bases of Movement (4). First and second semesters and summer. Three lectures and two laboratory hours a week. Prerequisites, Zool. 1, 14, 15; Physical Science Group Requirement.

A course designed to study kinesiological and physiological principles of exercise and the solution of problems concerned with increasing efficiency of movement in motor activities and work, as well as those of physical conditioning and training. In addition, their relationships to growth and development will be emphasized.

P. E. 101, 103. Organization and Officiating in Intramurals (2, 2). Six hours a week. First and second semesters.

Organization, administration, and promotion of intramurals at various school levels. Types of tournaments, units of competition, handling of student leader personnel, etc.

P. E. 110. Dance Production (3). First and second semesters. Prerequisites, P. E. 52, 54, 60, 70, 80, or equivalent.

Planning of group and individual choreography. Aspects of dance production such as staging, costumes, make-up for dancers, acquainting the student with elements of dance and theatre. Demonstration planning.

P. E. 113. Methods and Materials for Secondary Schools (3). First and second semesters. Prerequisites, P. E. 30, 50, 60, 61, 63, 65, 67.

This course is designed to help the student acquire a knowledge of the application of methods which directly or indirectly influence teacher-pupil learning situations in physical education at the secondary school level. Students will be required to arrange time to work with a staff physical education instructor in order to gain some practical teaching experience. Class activities include discussions, reports, outside readings, and teaching demonstrations.

P. E. 115. Methods and Materials for Secondary Schools (1). Three laboratory hours per week arranged. Second semester. Prerequisite: P. E. 113.

This is a laboratory course designed to help the student acquire practical experience in the courses of the University required program. The student will be given the opportunity to observe and assist in teaching under the direct supervision of a regular staff member.

P. E. 114, 116. Methods in Physical Education for Secondary Schools

(3, 3). Three lectures a week. First and second semesters. Prerequisites, P. E. 40, 62, 64, 66, 68.

Application of educational philosophy and principles to class organization and teaching techniques in individual sports, recreational games, gymnastics, body mechanics, dance, and relaxation for junior and senior high school programs.

P. E. 120. Physical Education for the Elementary School (3). First and second semesters and summer.

This course is designed to orient the general elementary teacher to physical education. Principles and practices in elementary physical education will be presented and discussed and a variety of appropriate activities will be considered from a standpoint of their use at the various grade levels.

P. E. 123, 125. Coaching Athletics (3, 3). Two lectures and two laboratory hours a week. First and second semesters.

Methods of coaching the various competitive sports commonly found in high school and college programs.

P. E. 124, 126. Practicum in Leadership (2, 2). One lecture and one three hour laboratory period a week. First and second semesters. Prerequisites, permission of instructor.

This course is designed to prepare the student for the student teaching experience by assisting in non-professional University classes. It also provides guidance in methods and materials of teaching in the junior and senior high schools.

P. E. 130. Fundamentals of Body Dynamics (3). First and second semesters and summer.

This course is designed to acquaint the elementary teacher with the scientific principles of mechanical-anatomical analysis and physiology of activities as they relate to physical growth and development.

P. E. S131. Coaching Basketball (2). Summer only.

Methods of coaching basketball in high school and college.

P. E. S133. Coaching Football (2). Summer only.

Methods of coaching football in high school and college.

P. E. 140. Curriculum, Instruction and Observation (3). First and second semesters. Prerequisites, men—P. E. 113; women—P. E. 114, 116, 124, 126.

A course designed to provide directed observations and discussion, coordinating these experiences with those from previous methods courses in the development of curricula for health and physical education. The course is planned to prepare for student teaching which follows in the same semester. The observations will be made of health and physical education programs in junior and senior high schools.

FOR ADVANCED UNDERGRADUATES AND GRADUATES

P. E. 150. Physical Fitness of the Individual (3). First and second semesters and summer.

A study of the major physical fitness problem confronting the adult in modern society. Consideration is given to the scientific appraisal, development and maintenance of fitness at all levels. Such problems as obesity, weight reduction, chronic fatigue, posture, and special exercise programs are explored. This course is open to majors in all areas of education.

P. E. 160. Scientific Bases of Movement Applied (3). First and second

semesters and summer. Two lectures and one laboratory hour a week. Prerequisite, P. E. 100.

An application of selected aspects of physical and biological sciences to fatigue, relaxation, uses of exercise; the corrective therapy aspect of physical and mental rehabilitation; sports for the handicapped; and prevention and care of athletic injuries.

P. E. 170. Supervision in Elementary School Physical Education (3). First and second semesters and summer. Prerequisite, P. E. 120.

Principles and techniques of supervision are studied from a standpoint of their application in improving the learning situation in elementary school physical education. Strong emphasis will be given to the concept that modern supervision in elementary school physical education should be based on the application of fundamental democratic principles.

P.E. 180. Measurement in Physical Education and Health (3). First and second semesters and summer. Two lecture and two laboratory periods a week. Prerequisite, Placement in Group 1 or 2 on Mathematics Entrance test or Math O.

The application of the principles and techniques of educational measurement to the teaching of health and physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of health and physical education, and in the evaluation of the effectiveness of teaching.

P.E. 181. Advanced Training and Conditioning (3). Second semester. Two lectures and two laboratory hours a week. Prerequisites, Zool. 14, 15, P. E. 100.

The training and physical conditioning of athletes. Treatment of athletic injuries by taping, massage, hydro-therapy, physical therapy, and electro-therapy. Remedial and conditioning exercises. Theory and practice.

P. E. 182. History of Dance (3). First and second semesters.

The development of dance from primitive to modern times and the relationship of dance forms to patterns of culture. A historical survey of the changing place of dance in civilization. Research problems.

P. E. 184. Theory and Philosophy of Dance (3). First and second semesters.

The study of the basic theories and philosophies of modern dance. Investigation of form, content and structure in dance and in relationship to other arts. The role of dance in education.

P. E. 189. Field Laboratory Projects and Workshop (1-6). First and second semesters and summer.

A course designed to meet the needs of persons in the field with respect to workshops and research projects in special areas of knowledge not covered by regularly structured courses.

Note: The maximum total number of credits that may be earned toward any degree in Physical Education, Recreation, or Health Education under P. E., REC., HEA., or ED. 189 is six.

P.E. 190. Administration and Supervision of Physical Education, Recreation, and Health (3). First and second semesters and summer.

The application of the principles of administration and supervision to physical education, recreation, and health. This course must be taken during the semester in which the student is doing student teaching.

P. E. 191. The Curriculum in Elementary School Physical Education (3). First and second semesters and summer. Prerequisite, P. E. 120.

Curriculum planning and construction is considered from a standpoint of valid criteria for the selection of content in elementary school physical education. Desirable features of cooperative curriculum planning in providing for learning experiences will be presented and discussed.

P. E. 195. Organization and Administration of Elementary School Physical Education (3). First and second semesters and summer. Prerequisite, P. E. 120.

This course considers the procedures which are basic to the satisfactory organization of all phases of the elementary school physical education program. Stress will be placed on the organizational and administrative factors necessary for the successful operation of the program in various types of elementary schools. Strong emphasis will be placed on organization and administration from a standpoint of adapting the program to specific situations.



Student teaching in swimming is a part of the practical experience for students preparing for a career in physical education.

FOR GRADUATES

P. E. 200. Seminar in Physical Education, Recreation, and Health (1). First and second semesters and summer.

P. E. 201. Foundations in Physical Education, Recreation, and Health (3). First and second semesters and summer.

A study of history, philosophy and principles of physical education, recreation and health as applied to current problems in each area and as related to general education.

P. E. 202. Status and Trends in Elementary School Physical Education (3). First and second semesters and summer.

An analysis of the current status and implications for future trends in physical education at the elementary school level. Open to experienced persons in all phases of education.

P. E. 203. Supervisory Techniques in Physical Education, Recreation, and Health (3). First and second semesters and summer.

A study of current concepts, principles and techniques of supervision and of their application to the special fields indicated; observation of available supervisory programs and visits with local supervisors; practice in the use of selected techniques.

P. E. 205. Administration of Athletics (3). First and second semesters and summer.

Problems and procedures in the administration of school and college athletic competition, the installation and maintenance of indoor and outdoor athletic equipment, special problems of surveys, legislation, property acquisition, finances, inventories, and the selection of personnel.

P. E. 210. Methods and Techniques of Research (3). First and second semesters and summer.

A study of methods and techniques of research used in physical education, recreation, and health education; an analysis of examples of their use; and practice in their application to problems of interest to the student.

P. E. 220. Quantitative Methods (3). First and second semesters and summer.

A course covering the statistical techniques most frequently used in research pertaining to physical education, recreation, and health education. An effort will be made to provide the student with the necessary skills, and to acquaint him with the interpretations and practical applications of these techniques.

P. E. 230. Source Material Survey (3). First and second semesters and summer.

A library survey course, covering the total areas of physical education, recreation, and health, plus research in one specific limited problem of which a digest, including a bibliography, is to be submitted.

P. E. 250. Mental and Emotional Aspects of Physical Education Activities (3). First and second semesters and summer. Prerequisites, Psych. 1, or H. D. Ed. 100, 101, or equivalents.

An exploration of psychological aspects of physical education, athletic sports and recreation. Applications of psychology are made to teaching and learning, coaching, athletic efficiency (motivation, emotional upset, staleness, etc.), and the problem of interpreting physical education and recreation experiences. Means of studying problems of these kinds are evaluated.

P. E. 280. Scientific Bases of Exercise (3). First and second semesters and summer. Prerequisites, Anatomy, Physiology, P. E. 100, 160, or equivalent.

A critical analysis of the role of physical exercise in modern society with attention given to such topics as: the need for physical exercise, its chronic effects, the role of exercise in attaining good physical condition and fitness, factors determining championship performances, and physical fatigue.

P. E. 287. Advanced Seminar (1-2). First and second semesters and summer. Prerequisite: P. E. 201, or Hea. 220, or equivalent, or permission of the instructor.

This course is a study of the current problems and trends in the selected fields of Physical Education, Recreation, and Health.

P. E. 288. Special Problems in Physical Education, Recreation and Health (1-6). First and second semesters and summer.

Master or Doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for 1-6 hours of credit under this number.

P. E. 289. Research—Thesis (1-5). First and second semesters and summer.

Students who desire credits for a Master's thesis, a doctoral dissertation, or a Doctoral project should use this number.

P. E. 290. Administrative Direction of Physical Education, Recreation, and Health (3). First and second semesters and summer.

This course is devoted to the analysis of administrative problems in the light of sound educational practice. Students concentrate their efforts upon their own on-the-job administrative problems and contribute to the solution of other class members' problems.

P. E. 291. Curriculum Construction in Physical Education and Health (3). First and second semesters and summer.

A study of the principles underlying curriculum construction in Physical Education and Health Education and the practical application of these principles to the construction of a curriculum for a specific situation. The specific content of this course is adjusted to meet the needs of the students enrolled in it.

B. Recreation

Rec. 10, 11. Recreation Orientation (0, 0). First and second semesters.

Through occasional class sessions and attendance at various meetings on and off campus, those majoring in recreation will have an opportunity to become acquainted with their fellow students, with the national organizations in the field and their leaders and activities, and with the broad scope of recreation and its various divisions and interests.

Rec. 30. History and Introduction to Recreation (2). First and second semesters.

An introduction to the beginnings, growth, and possibilities in recreation as presently fostered by individuals, agencies and governments; attitudes toward and theories of play; historical events and figures; present principles and objectives; organizations and groups interested in recreation, and their relationships; job opportunities, specifications and demands; self analysis of individual student interests; limitations and capabilities in light of these specifications and demands.

Rec. 40. Camp Counseling and Administration (3). First and second semesters.

A study of the philosophy and techniques of camp counseling including the qualifications, responsibilities and skills involved; the basic organization, administration and program planning practices and problems of camping as a whole; the relationship of these practices and problems to the counselor and his or her probable success. Outdoor skills will be taught and practiced insofar as possible.

FOR ADVANCED UNDERGRADUATES

Rec. 100. Co-recreational Games and Programs (2). First and second semesters and summer.

Compilation and sampling of the techniques for the use of low organization and party games and activities. Emphasis is placed upon those activities of value to a recreation leader or teacher, and upon the placement, sequence and variation of such activities for all age levels and interests.

Rec. 110. Nature Lore (1-2). Second semester.

An overall orientation course conducted in conjunction with the National Park Service of Washington, D. C., and covering various of the areas of physical and biological sciences; rocks, trees, animals, birds, flowers, etc. Two credits will be granted those students completing the maximum requirements of the course including evening lectures, Saturday and/or Sunday observations, the Saturday Outdoor Leadership Workshop (24 hours), and periodic class meetings held at the University of Maryland.

Rec. 120. Program Planning (3). First and second semesters. Prerequisite Rec. 30.

Study of the various aspects, problems and practices of family, agency and governmental recreation programs and their planning, with particular emphasis on playground-community and teen-age center plans and procedures. This course should be of interest and value to those students planning to do part-time summer playground work.

Rec. 140. Observation and Field Work in Recreation (5). First and second semesters.

Included are observation and field work at various of the facilities available; particular emphasis will be placed on whatever observations may be needed to complete coverage of the various opportunities; field work opportunities themselves will be selected and assigned on the basis of student interest and future job plans.

For Advanced Undergraduates and Graduates

Rec. 150. Camp Management (3). First and second semesters and summer.

An advanced camping course for those students with previous training and experience; organization, administration, programming, current trends, evaluation, and special problems. Whenever possible, visiting specialists and field trips will be included.

Rec. 170. General Fundamentals of Recreation (3). First and second semesters.

This course is designed for students not majoring in recreation who wish to develop some understanding of the place, importance and potentialities of recreation in modern life. Included will be limited study of the areas of philosophy, program planning, personality and leadership techniques, organization and administration, and interrelationships with other fields.

Rec. 180. Leadership Techniques and Practices (3). First and second semesters.

A study of the various kinds of levels of leadership exerted by professional and semi-professional workers, some of the difficulties and probable weaknesses to be met, and some of the tangible techniques to be used in personnel, staff, and public relationships; handling of problem children, of personnel, of public relations campaigns, committee gatherings, etc. The group work approach will be emphasized and used, insofar as possible, in the solution of particular problems that grow out of practical experiences in handling on and off campus groups.

Rec. S184. Outdoor Education (6). Summer only.

A full-time program for teachers, administrators, recreation leaders, and social workers in functionalized child development through utilization of the surrounding natural environment and resources. Guided group work implements the acquired techniques for use with children in developing education in democratic living, worthy use of leisure, certain character traits and also for vitalizing such subject-matter areas as mathematics, language, arts, social and natural sciences, music, health and physical education, graphic and plastic arts.

Rec. 189. Field Laboratory Projects and Workshop (1-6). First and second semesters and summer.

A course designed to meet the needs of persons in the field with respect to work-shops and research projects in special areas of knowledge not covered by regularly structured courses.

Note: The maximum total number of credits that may be earned toward any degree in Physical Education, Recreation, or Health Education under P. E., Rec., Hea., or Ed. 189 is six.

Rec. 190. Organization and Administration of Recreation (3). First and second semesters and summer.

A study of the organizational patterns for and administrative problems involved in the various kinds of operating recreation groups and agencies; forms of organization; finance and budgets; personnel; areas, facilities, and equipment; public relations.

For Graduates

Rec. 200. Seminar in Physical Education, Recreation, and Health (1). First and second semesters and summer.

Rec. 201. Foundations of Physical Education, Recreation and Health (3). First and second semesters and summer.

A study of history, philosophy and principles of physical education, recreation and health as applied to current problems in each area and as related to general education.

Rec. 202. Philosophy of Recreation (2). First and second semesters and summer.

A study of the meanings, relationships, and services of recreation as expressed by past and present authorities and leaders. This course should be of interest to people active in education, social work and related fields.

Rec. 203. Supervisory Techniques in Physical Education, Recreation and Health (3). First and second semesters and summer.

A study of current concepts, principles and techniques of supervision and their application to the special fields indicated; observation of available supervisory programs and visits with local supervisors; practice in the use of selected techniques.

Rec. 204. Modern Trends in Recreation (3). First and second semesters and summer.

A study of emphasis and recent developments in the recreation field as a whole and within its various specialized areas, making particular reference to the current and new literature.

Rec. 210. Methods and Techniques of Research (3). First and second semesters and summer.

A study of methods and techniques of research used in physical education, recreation, and health education; an analysis of examples of their use; and practice in their application to problems of interest to the student.

Rec. 220. Quantitative Methods (3). First and second semesters and summer.

A course covering the statistical techniques most frequently used in research pertaining to physical education, recreation and health education. An effort will be made to provide the student with the necessary skills, and to acquaint him with the interpretations and practical applications of these techniques.

Rec. 230. Source Material Survey (3). First and second semesters and summer.

A library survey course, covering the total areas of physical education, recreation, and health, plus research in one specific limited problem of which a digest, including a bibliography, is to be submitted.

Rec. 240. Industrial Recreation (3). First and second semesters and summer.

An introductory study of the philosophy of and practices and problems in industrial recreation. Where possible the course will include opportunities for observation and field work.

Rec. 260. Hospital Recreation (3). First and second semesters and summer.

An introductory study of the philosophy of and practices and problems in hospital and institutional recreation. Where possible the course will include opportunities for observation and field work.

Rec. 287. Advanced Seminar (1-2). First and second semesters and summer. Prerequisites: P. E. 201, Hea. 201, Rec. 201, or Hea. 220, or permission of the instructor.

This course is a study of the current problems and trends in the selected fields of physical education, recreation and health education.

Rec. 288. Special Problems in Physical Education, Recreation and Health (1-6). First and second semesters and summer.

Master or Doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for 1-6 hours of credit under this number.

Rec. 289. Research—Thesis (1-5). First and second semesters and summer.

Students who desire credits for a Master's thesis, a Doctoral dissertation, or a Doctoral project should use this number.

Rec. 290. Administrative Direction of Physical Education, Recreation and Health (3). First and second semesters and summer.

This course is devoted to the analysis of administrative problems in the light of sound educational practice. Students concentrate their efforts upon their own on-the-job administrative problems and contribute to the solution of other class members' problems.

C. Health Education

Hea. 10. Orientation to Health Education (1). First and second semesters.

This course explores the field of Health Education in both the school and the community from the point of view of the health educator. Professional preparation and career opportunities are considered.

Hea. 30. Introduction to Physical Education, Recreation, and Health (3). First and second semesters.

Development of understanding and appreciation of the historic and significant purpose and place of each of the specialized areas in general education. A study of the educational and personal requirements and opportunities of a career in each professional area. Students will be acquainted with the status and trends of each area.

Hea. 40. Personal and Community Health (3). First and second semesters.

Meaning and significance of physical, mental, and social health as related to the individual and to society; important phases of national health problems; constructive

methods of promoting health of the individual and the community; health problems of college students and young people with special emphasis on health knowledge for the future teacher.

Hea. 50. First Aid and Safety (2). First and second semesters.

Standard and Advanced American Red Cross courses in first aid; safety physical activities.

Hea. 60. Advanced First Aid (2). First and second semesters.

Opportunity to secure Red Cross Advanced and Instructor's Certificate.

Hea. 70. Safety Education (3). First and second semesters.

A study of the causes of accidents and methods of prevention, including principles of traffic and industrial safety.

Hea. 80. The Driver, His Characteristics and Improvement (3). First and second semesters and summer. Prerequisites: Hea. 50, 70.

The aim of this study is to treat the driver-behavior problem in its relation to many of the psycho-physical factors and forces in the traffic environment that impinge upon the man behind the wheel.

FOR ADVANCED UNDERGRADUATES

Hea. 105. Basic Driver Education (3). First and second semesters and summer. Prerequisites: Hea. 50, 70, 80.

This course is a study of the place of the automobile in modern life and deals with the theory and practice of the following: traffic accidents and other traffic problems; objectives and scope of driver-education; motor vehicle laws and regulations; basic automobile construction and maintenance from the standpoint of safety; methods in classroom instruction; aids to learning and practice driving instruction.

Hea. 110. Introduction to School and Community Health Services (2). First and second semesters and summer. Prerequisites: Hea. 2 and 4, or Hea. 40.

This course deals with many aspects of school and community health programs, and the backgrounds and history of the services studied with their relationships to each other directly and indirectly. Various phases of healthful living are discussed as a part of school and community health. Special emphasis is placed upon the health services of both programs.

Hea. 120. Methods and Materials of School Health Instruction (3) First and second semesters. Prerequisites: Hea. 40 or equivalent.

This course considers various plans of teaching health in schools. Health education teaching methods and materials are evaluated with regard to their application to practical situations.

Hea. 140. Curriculum, Instruction and Observation (3). First and second semesters and summer. Prerequisites: Hea. 40, 110, 120.

A course designed to provide directed observation and discussion, coordinating these experiences with those from previous methods courses in the development of curricula for health and physical education. The course is planned to prepare for student teaching which follows in the same semester. The observations will be made of health and physical education programs in junior and senior high schools.

Hea. 145. Advanced Driver Education (3). First and second semesters and summer. Prerequisites: Hea. 50, 70, 80, 105.

Progressive techniques and practice of advanced driver-education; comprehensive

programming for traffic safety; psychology of traffic safety; improving the attitudes of young drivers; teaching to meet driving emergencies; program planning in driver-education; consumer education; resources and agencies; the teacher and driver-education; measuring and evaluating results; driver-education for adults; new developments in driver-education; insurance and liability, and the future of driver-education.

For Advanced Undergraduates and Graduates

Hea. 150. Health Problems of the School Child (3). First and second semesters and summer.

A study of the major physical, mental and emotional health needs and problems of school children.

Hea. 160. Problems in School Health Education in Elementary and Secondary Schools (2-6). First and second semesters and summer.

This is a workshop type course designed particularly for in-service teachers to acquaint them with the best methods of providing good health services, healthful environment and health instruction.

Hea. 170. The Health Program in the Elementary School (3). First and second semesters and summer. Prerequisites: Hea. 2 and 4 or Hea. 40.

This course, designed for the elementary school classroom teacher, analyzes biological, sociological, nutritional and other factors which determine the health status and needs of the individual elementary school child. The various aspects of the school program are evaluated in terms of their role in health education. The total school health program is surveyed from the standpoint of organization and administration, and health appraisal. Emphasis is placed upon modern methods and current materials in health instruction. (The State Department of Education accepts this course for biological science credit.)

Hea. 180. Measurement in Physical Education and Health (3). First and second semesters and summer. Two lectures and two laboratory periods per week.

The application of the principles and techniques of educational measurement to the teaching of health and physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of health and physical education, and in the evaluation of the effectiveness of teaching.

Hea. 189. Field Laboratory Projects and Workshop (1-6). First and second semesters and summer.

A course designed to meet the needs of persons in the field with respect to workshops and research projects in special areas of knowledge not covered by regularly structured courses.

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Hea. 190. Administration and Supervision of School Health Education (3). First and second semesters and summer.

The application of the principles of administration and supervision to school health education. The course should be taken during the semester in which the student is doing student teaching.

For Graduates

Hea. 200. Seminar in Physical Education, Recreation and Health (1). First and second semesters and summer.

Hea. 201. Foundations in Physical Education, Recreation and Health (3). First and second semesters and summer.

A study of history, philosophy and principles of physical education, recreation and health as applied to current problems in each area and as related to general education.

Hea. 203. Supervisory Techniques in Physical Education, Recreation, and Health (3). First and second semesters and summer.

A study of current concepts, principles and techniques of supervision and of their application to the special fields indicated; observation of available supervisory programs and visits with local supervisors; practice in the use of selected techniques.

Hea. 210. Methods and Techniques of Research (3). First and second semesters and summer.

A study of methods and techniques of research used in physical education, recreation and health education; an analysis of examples of their use; and practice in their application to problems of interest to the student.

Hea. 220. Principles and Practice of Health Education (3). First and second semesters and summer.

A course dealing with an analysis of physical, mental, and social factors which influence the total health status during the developmental process. The role of education in fostering physical and mental health is studied.

Hea. 230. Source Material Survey (3). First and second semesters and summer.

A library survey course, covering the total areas of physical education, recreation and health, plus research in one specific limited problem of which a digest, including a bibliography, is to be submitted.

Hea. 240. Advancements in Modern Health (3). First and second semesters and summer.

This course is designed to review the developments in those scientific and medical areas upon which the concepts of modern health education are based.

Hea. 250. Health Problems in Guidance (3). First and second semesters and summers.

A course designed to familiarize guidance counselors with principles of health and with common deviations from health, especially during the school years. Implications of health for pupil effectiveness in the entire curriculum, including extra-class activities, are dealt with. Special attention is given to psychosomatic disturbances which are commonly an aspect of personal problem situations. Methods of dealing with health problems and utilizing available resources of school and community are discussed.

Hea. 260. Public Health Education (3). First and second semesters and summer.

A course designed to acquaint the student with the structure, functions and major problems in public health; and with the role of education in public health.

Hea. 280. The Scientific Bases of Exercise (3). First and second semesters and summer. Prerequisites, Anatomy, Physiology, P. E. 100, P. E. 160, or the equivalent.

A critical analysis of the role of physical exercise in modern society with attention given to such topics as: the need for physical exercise, its chronic effects, the role of exercise in attaining good physical condition and fitness, factors determining championship performances, and physical fatigue.

Hea. 287. Advanced Seminar (1-2). First and second semesters and summer. Prerequisites: P. E. 201, Hea. 201, Rec. 201, or Hea. 220, or permission of the instructor.

This course is a study of the current problems and trends in the selected fields of physical education, recreation and health education.

Hea. 288. Special Problems in Physical Education, Recreation, and Health (1-6). First and second semesters and summer.

Master or Doctoral candidates who desire to pursue special research problems under the direction of their advisors may register for 1-6 hours of credit under this number.

Hea. 289. Research—Thesis (1-5). First and second semesters and summer.

Students who desire credit for a Master's thesis, a Doctoral dissertation, or a Doctoral project should use this number.

Hea. 290. Administrative Direction of Physical Education, Recreation and Health (3). First and second semesters and summer.

This course is devoted to the analysis of administrative problems in the light of sound educational practice. Students concentrate their efforts upon their own on-the-job administrative problems and contribute to the solution of other class members' problems.

Hea. 291. Curriculum Construction in Physical Education and Health (3). First and second semesters and summer.

A study of the principles underlying curriculum construction in physical education and health education and the practical application of these principles to the construction of a curriculum for a specific situation. The specific content of this course is adjusted to meet the needs of the students enrolled in it.

D. Physical Therapy

P. T. 10, 11. Physical Therapy Orientation (0, 0). One hour per week. First and second semesters.

General introductory course to the professional field of physical therapy. Field trip to physical therapy departments in government and private agencies. Orientation the student to job opportunities with their specifications and demands; self analysis the students' capabilities and the major curriculum in light of such specifications and demands.

P. T. 20, 21. Foundations of Physical Therapy (1, 1). One hour per week. First and second semesters.

Introduction to the development, growth and function of physical medicine and rehabilitation with regard to the role of the physical therapist. A study of the national organization and the leaders in the field. Analysis of medical terminology and development of a field vocabulary.



UNIVERSITY OF MARYLAND PRESIDENT SPEAKS—Opening session of the two-day Armed Services Educational Conference is addressed by Dr. Wilson H. Elkins, President of the University of Maryland. From left, Maj. Gen. W. Sessums, Jr., USAF, Vice-Commander, Air Research and Development Command, Baltimore, Md.; Dr. Elkins; Dean Ray Ehrensberger of the University's College of Special and Continuation Studies; Col. Miles Palmer, Chief, Education Division, Office of Armed Forces Information and Education, Department of Defense. Dr. Albert N. Jorgenson, President, University of Connecticut also participated on this panel.

College of SPECIAL AND CONTINUATION STUDIES ISSUE 1956-1957

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- DONALD J. PATTON, Associate Professor of Geography.
S.B., Harvard University, 1942; A.M., 1947; Ph.D., 1949.
- WILLIAM A. PENNINGTON, Professor of Chemical Engineering.
B.S., Union University, 1925; Ph.D., Iowa State College, 1933.

ROLAND I. PERUSSE, Lecturer in Government and Politics.

B.A., University of Wisconsin, 1946; Ph.D., American University, 1955.

RICHARD L. PETRITZ, Lecturer in Physics.

B.S., Northwestern University, 1946; M.S., 1947; Ph.D., 1950.

CHARLES D. PHILLIPS, Assistant Professor of Business Organization and Administration.

A.B., DePauw University, 1949; M.A., State University of Iowa, 1950; Ph.D., 1952.

FRANKLIN A. PHILLIPS, Lecturer in Mathematics.

B.A., Arizona State College, 1952; M.A., University of Oklahoma, 1953.

ELMER PLISCHKE, Professor and Head of Government and Politics.

Ph.B., Marquette University, 1937; M.A., American University, 1938; Ph.D., Clark University, 1943.

JOHN PORTZ, Instructor in English.

B.A., Duke University, 1937; M.A., Harvard University, 1942.

AUGUSTUS J. PRAHL, Professor of Foreign Languages.

M.A., Washington University, 1928; Ph.D., Johns Hopkins University, 1933.

GORDON W. PRANGE, Professor of History.

B.A., University of Iowa, 1932; M.A., 1934; Ph.D., 1937.

D. VINCENT PROVENZA, Associate Professor of Education.

B.S., University of Maryland, 1939; M.S., 1941; Ph.D., 1952.

RUDOLPH E. PUGLIESE, Instructor in Speech.

B.A., Miami University, Ohio, 1947; M.A., Catholic University, 1949.

DONALD K. PUMROY, Instructor in Psychology.

B.A., University of Iowa, 1949; M.S., University of Wisconsin, 1951; Ph.D., University of Washington, 1954.

JOSEPH M. RAY, Lecturer in Government and Politics.

B.A., University of Texas, 1932; M.A., 1933; Ph.D., 1937.

HENRY R. REED, Professor of Electrical Engineering.

B.S., University of Minnesota, 1925; M.S., 1927; E.E., South Dakota State College, 1930; Ph.D., University of Iowa, 1941; Registered Professional Engineer.

JAMES H. REID, Professor of Marketing.

B.S., University of Iowa, 1923; M.A., American University, 1933.

RICHARD C. ROBERTS, Lecturer in Mathematics.

A.B., Kenyon College, 1946; Sc.M., Brown University, 1946; Ph.D., 1949.

EDWARD A. ROBINSON, Lecturer in Economics.

B.A., St. Mary's Seminary and University, 1944; M.A., Catholic University of America, 1948; Ph.D., 1954.

JOHN M. ROBINSON, Assistant Professor of Philosophy.

B.A., Middlebury College, 1945; Ph.D., Cornell University, 1949.

RUSSELL C. ROSS, Instructor in Speech (North Atlantic).

A.B., Des Moines University, 1922; M.A., State University of Iowa, 1932.

SHERMAN ROSS, Associate Professor of Psychology.

B.S., City College of New York, 1939; M.A., Columbia University, 1941, Ph.D., 1943.

NORMAN R. ROTH, Assistant Professor of Sociology.

B.A., Hobart College, 1942; M.A., University of Rochester, 1949; M. Ed., Teachers College, Columbia University, 1950; Ph.D., 1950.

PHILIP ROVNER, Instructor in Foreign Languages.

B.A., George Washington University, 1948; M.A., 1949.

- WILLIAM K. SAUNDERS, Lecturer in Electrical Engineering.
B.S., Yale University, 1937; M.A., University of California, 1948; Ph.D., 1951.
- JOHN E. SAVESON, Instructor in English.
B.A., Denison University, 1947; M.A., University of Chicago, 1948.
- EDWARD J. SHANTZ, Lecturer in Chemistry.
B.S., University of Wisconsin, 1931; M.S., Iowa State College, 1933; Ph.D., University of Wisconsin, 1939.
- ALFRED C. SCHERER, Lecturer in Foreign Languages.
B.A., University of Illinois, 1934; M.A., 1936; Ph.D., 1939.
- ALVIN W. SCHINDLER, Professor of Education.
A.B., Iowa State Teachers College, 1927; M.A., State University of Iowa, 1929; Ph.D., 1934.
- JOHN F. SCHMIDT, Instructor in Sociology.
B.A., University of Chicago, 1941; M.A., 1946; Ph.D., 1950.
- FERN D. SCHNEIDER, Assistant Professor of Education.
B.S., Nebraska Wesleyan, 1932; M.A., George Washington University, 1934; Ed.D., Teachers College, Columbia University, 1940.
- IDA G. SCHOLL, Lecturer in Foreign Languages.
- EARL A. SCHUCHARD, Lecturer in Electrical Engineering.
B.S., University of Washington, 1933; M.S., 1934; Ph.D., 1940.
- LARUE SCHWALLENBERG, Lecturer in Nursing.
B.S., Western Reserve University, 1949; M.A., University of Maryland, 1955.
- MARK SCHWEIZER, Assistant Professor of Foreign Languages.
M.A., University of Maryland, 1932; Ph.D., 1941.
- TAYLOR C. SCOTT, JR., Instructor in Sociology.
A.B., University of Florida, 1947; M.A., 1949.
- IRVING H. SHAMES, Assistant Professor of Mechanical Engineering.
B.S., Northeastern University, 1948; M.S., Harvard University, 1949; Ph.D., University of Maryland, 1953.
- DANIEL SHANKS, Lecturer in Mathematics.
B.S., University of Chicago, 1937; Ph.D., University of Maryland, 1954.
- PAUL W. SHANKWEILER, Associate Professor of Sociology.
Ph.B., Muhlenberg, 1919; M.A., Columbia University, 1921; Ph.D., University of North Carolina, 1934.
- MAURICE M. SHAPIRO, Lecturer in Physics.
B.S., University of Chicago, 1936; M.S., 1940; Ph.D., 1942.
- DONALD E. SHAY, Professor of Bacteriology.
B.S., Lebanon Valley College, 1937; M.S., University of Maryland, 1938; Ph.D., 1943.
- PAUL E. SHAY, Instructor in English (Europe).
B.A., Yale University, 1949.
- ROBERT E. SHEPHERD, Instructor in History (Europe).
B.A., University of Iowa, 1950.
- CHARLES A. SHREEVE, JR., Professor of Mechanical Engineering.
B.E., Johns Hopkins University, 1935; M.S., University of Maryland, 1943.
- JOSEPH W. SIRY, Lecturer in Mathematics.
B.S., Rutgers University, 1941; M.A., University of Maryland, 1947; Ph.D., 1953.
- FRANK J. SLAMA, Professor of Botany.
B.S., University of Maryland, 1928; M.S., 1930; Ph.D., 1935.
- MILTON M. SLAWSKY, Lecturer in Physics.
B.S., Rensselaer Polytechnic Institute, 1933; M.S., California Institute of Technology, 1935; Ph.D., University of Michigan, 1938.

- GAYLE S. SMITH, Instructor in English.
B.S., Iowa State College, 1948; M.A., Cornell University, 1951.
- GERALD A. SMITH, Instructor in English.
A.B., University of Notre Dame, 1942; M.A., University of Rochester, 1947.
- HARRISON SMITH, Assistant Professor of History (Europe).
B.S., Georgetown University, 1939; M.A., 1942; Ph.D., 1950; Ph.D., Fribourg University, 1951.
- SPENCER M. SMITH, JR., Assistant Professor of Economics.
B.A., State University of Iowa, 1941; M.A., 1942; Ph.D., 1948.
- BENJAMIN L. SNAVELY, Lecturer in Physics.
B.S., Lehigh University, 1928; Ph.D., Princeton University, 1935.
- GEORGE A. SNOW, Lecturer in Physics.
B.S., City College of New York, 1945; M.A., Princeton University 1947; Ph.D., 1949.
- DAVID S. SPARKS, Assistant Professor of History.
B.A., Grinnell College, 1944; M.A., University of Chicago, 1945; Ph.D., 1951.
- HILLEL SPITZ, Lecturer in Mathematics.
B.A., George Washington University, 1943; Sc.M., Brown University, 1945.
- E. THOMAS STARCHER, Instructor in Speech.
B.A., University of Southern California, 1940; M.S., University of Arkansas, 1948.
- REUBEN G. W. STEINMEYER, Professor of Government and Politics.
A.B., American University, 1929; Ph.D., 1935.
- JAMES E. STORING, Professor of Government and Politics (Europe).
B.A., Iowa State Teachers College, 1927; M.A., State University of Iowa, 1931; Ph.D., 1938.
- CLARA G. STRATENMEYER, Lecturer in Education.
B.S., Teachers College, Columbia University, 1928; M.A., 1929; Ph.D., Columbia University, 1936.
- WARREN L. STRAUSBAUGH, Associate Professor and Head of Speech.
B.S., Wooster College, 1932; M.A., University of Iowa, 1935.
- ROLAND N. STROMBERG, Assistant Professor of History.
A.B., University of Kansas City, 1939; M.A., American University, 1946; Ph.D., University of Maryland, 1951.
- JOHN B. STRUBLE, Lecturer in Military Science.
B.A., American University, 1938.
- CHARLES T. SWEENEY, Professor of Accounting.
B.S., Cornell University, 1921; M.B.A., University of Michigan, 1928.
- HAROLD F. SYLVESTER, Professor of Personnel Administration.
Ph.D., Johns Hopkins University, 1938.
- MATTHEW TABACK, Lecturer in Nursing.
A.B., Harvard University, 1939; A.M., Columbia University, 1940; Sc.D., Johns Hopkins School of Hygiene, 1953.
- MANFORD B. TATE, Lecturer in Mechanical Engineering.
B.S., University of Missouri, 1940; M.S., 1942; Ph.D., Iowa State College, 1949.
- DORIS E. TERRY, Instructor in Physical Education.
B.S., Western Kentucky State, 1949; M.S., Indiana University, 1952.
- FEODOR THEILHEIMER, Lecturer in Mathematics.
Ph.D., University of Berlin, 1936.
- PHRIXOS J. THEODORIDES, Research Professor of Mechanical Engineering.
Dipl. Masch. Ing., Federal Institute of Technology (Zurich), 1917; Dr. Sc Techn., 1921.

RAYMOND THORBERG, Instructor of English.

B.A., University of Alaska, 1939; M.A., University of Chicago, 1946; Ph.D., Cornell University, 1954.

PAUL A. THURSTON, Lecturer in Physics.

B.A., Ohio Wesleyan University, 1942; B.M.E., Ohio State University, 1943; Doctorandus, University of Amsterdam, 1952.

WILLIAM F. TIERNEY, Assistant Professor of Industrial Education.

B.S., Teachers College of Connecticut, 1941; M.A., Ohio State University, 1949; Ed.D., University of Maryland, 1952.

MARTIN T. TODARO, Lecturer in Speech.

B.S., University of Texas, 1947; M.A., 1949.

HORACE M. TRENT, Lecturer in Electrical Engineering.

B.A., Berea College, 1928; M.A., Indiana University, 1929; Ph.D., 1934.

ROBERT S. TRIPLETT, Instructor in Mathematics.

B.S., University of Kentucky, 1940; M.A., University of Chicago, 1943.

JAMES A. VAN ZWOLL, Professor of Education.

A.B., Calvin College, 1933; M.A., University of Michigan, 1937; Ph.D., 1942.

S. M. VINOCOUR, Lecturer in Speech.

B.A., University of Southern California, 1943; M.A., University of Nevada, 1948; Ph.D., Pennsylvania State University, 1953.

ROALD K. WANGSNES, Lecturer in Physics.

B.A., University of Minnesota, 1944; Ph.D., Stanford University, 1950.

KATHRYN P. WARD, Associate Professor of English.

A.B., George Washington University, 1935; M.A., 1937; Ph.D., 1946.

HUBERT A. WARNER, Lecturer in Business Administration.

B.S., Pennsylvania State University, 1926.

WILLIAM E. WATERS, JR., Lecturer in Electrical Engineering.

B.S., University of Kentucky, 1947; M.S., 1949.

J. DONALD WATSON, Professor of Business Administration.

A.B., Reed College, 1926; M.B.A., University of Michigan, 1931; Ph.D., Northwestern University, 1941.

LINVILL F. WATSON, Assistant Professor of Sociology (Europe).

A.B., University of Pennsylvania, 1939; Ph.D., 1953.

FRED W. WELLEORN, Professor of History.

B.A., Baker University, 1918; M.A., University of Kansas, 1923; Ph.D., University of Wisconsin, 1926.

JANET A. WESSEL, Assistant Professor of Physical Education.

A.B., MacMurray College, 1942; M.S., Wellesley College, 1943; Ph.D., University of Southern California, 1950.

PHILIP D. WHEATON, Instructor in History (North Atlantic).

A.B., Clark University, 1938; M.Ed., 1946; Ph.D., University of Maryland, 1955.

KATHARINE WHITESIDE-TAYLOR, Lecturer in Education.

B.A., University of Wisconsin, 1919; M.A., Teachers College, Columbia University, 1936; Ed.D., 1938.

FRANCES C. WICKHAM, Assistant Professor of Nursing.

B.S., Catholic University of America, 1947.

GLADYS A. WIGGIN, Professor of Education.

B.S., University of Minnesota, 1929; M.A., 1939; Ph.D., University of Maryland, 1947.

HUNTINGTON WILLIAMS, Lecturer in Nursing.

A.B., Harvard University, 1915; M.D., Johns Hopkins University, 1919; Ph.D., 1921.

ROBERT E. WILSON, Lecturer in Aeronautical Engineering.

B.S., Georgia Institute of Technology, 1941; M.S., 1942; Ph.D., University of Texas, 1952.

JOHN J. WUEST, JR., Assistant Professor of Government and Politics (Europe).

B.S., University of Southern California, 1941; M.S., University of California, 1943; Ph.D., 1949.

JOHN E. YOUNGER, Professor and Head of Mechanical Engineering.

B.S., University of California, 1923; M.S., 1924; Ph.D., 1925.

W. GORDON ZEEVELD, Professor of English.

A.B., University of Rochester, 1924; M.A., Johns Hopkins University, 1929; Ph.D., 1936.

ADOLF E. ZUCKER, Professor and Head of Foreign Languages.

A.B., University of Illinois, 1912; A.M., 1913; Ph.D., University of Pennsylvania, 1917.



GRADUATING CLASS PROCESSIONAL—Their diplomas in hand, the graduates of the Class of 1955 of the University of Maryland Overseas Program commencement in the historic city of Heidelberg file out of the University of Heidelberg's Neue Aula as scores of spectators look on. Dr. Daly, the Marshall, is shown leading the procession, followed by Dean Ehrensberger, General Gruenther, President Elkins, Governor McKeldin, Dr. Herbig, and Maj. Gen. Wilson.

COLLEGE OF SPECIAL AND CONTINUATION STUDIES

ADMINISTRATIVE STAFF

RAY EHRENSBERGER, Ph.D., *Dean**STANLEY J. DRAZEK, Ph.D., *Associate Dean*RALPH J. KLEIN, Ph.D., *Assistant to the Dean*GEORGE J. DILLAVOU, M.A., *Assistant to the Dean*RICHARD H. STOTTLER, M.A., *Director of Institutes*

SECTION I

GENERAL

The primary purposes of the College of Special and Continuation Studies are: (1) to extend the facilities of the University by offering educational programs at conveniently established off-campus centers overseas and throughout the State of Maryland and environs of the District of Columbia; (2) To offer a Bachelor of Arts degree in General Studies to mature adult off-campus students.

History

On the recommendation of the Administrative Board and the President of the University, the Board of Regents established in 1947 the College of Special and Continuation Studies. This College performs two principal functions. First, it is charged with the responsibility of administering all off-campus instruction for adult part-time students. Secondly, it enrolls students pursuing the Bachelor of Arts degree in General Studies.

The scope of activity of this College has been greatly extended since its inception in 1947. The College administers one of the world's largest campuses with operations conducted on four continents. Last year there were more than one hundred and twenty-five different Education Centers in fifteen countries, serving thirteen thousand students. In addition there are over forty conveniently established Centers located throughout the State of Maryland and environs of the District of Columbia, serving more than five thousand adults.

ACADEMIC PROGRAMS

Degree Opportunities

In cooperation with other colleges of the University, the College of Special and Continuation Studies administers off-campus courses which may be applied to the Bachelor of Arts degree in General Studies or to other established undergraduate or graduate degrees. *Students matriculated in other colleges of the University of Maryland on-campus may not transfer to the Bachelor of Arts degree curriculum in General Studies.*

Further information regarding degree programs are explained in Section III of this catalog.

*Office of the Dean: University of Maryland, College Park, Maryland. Telephone, Washington, D. C. Exchange: WARfield 7-3800, extensions 425, 434, 541.

Associate in Arts or Associate in Science

Students following an adult program with the University of Maryland who have completed the first two years of an established curriculum may be granted a Certificate of Associate in Arts or Associate in Science, whichever is appropriate, providing they have completed 60 semester hours, not including Basic R.O.T.C. and physical activities, and that at least 15 semester hours have been completed in residence at the University of Maryland with an average grade of 2.0. The student must make formal application for the certificate to the Office of the Registrar. The certificate must be recommended by the college in charge of the curriculum, as in the case of degrees.

ADULT EDUCATION PROGRAMS*

The adult education programs offered by the College of Special and Continuation Studies afford students a convenient opportunity to continue their education. Students who have full-time employment or who, for some other reason, cannot follow a full-time program at College Park may pursue degrees off-campus.

Courses at both the graduate and undergraduate level are offered in government agencies, industrial establishments, educational institutions, military establishments, and other centers. All courses offered and instructors assigned to teach them are fully approved by the University department concerned.

CURRICULUM REQUIREMENTS

Requirements for all degrees must be met to the satisfaction of the dean of the college concerned.

ESTABLISHMENT OF OFF-CAMPUS CENTERS

The College is prepared to establish credit courses, institutes, and special programs for groups of adults who are qualified to do university work. If facilities permit and demand is sufficient, courses or institutes may be set up in any community requesting this service.

The ability of the College of Special and Continuation Studies to meet all requests for off-campus courses is limited by three factors. (1) The College prefers to use regular university staff members to teach its courses. Occasionally, staff members are not free for off-campus assignments. (2) Courses can be given only where there are adequate reference library materials, laboratories or other necessary facilities. (3) Another limiting factor is student enrollment. Occasionally a course which has been scheduled must be cancelled if there is insufficient enrollment.

*Adult education is here used to include all those forms of training and learning pursued incidentally during leisure hours by persons otherwise regularly and fully employed.

TYPES OF COURSES AND INSTITUTES

The College of Special and Continuation Studies offered during the 1955-1956 school year approximately 250 courses each semester for credit. Over 50 courses were given in the summer term. These figures do not include the European and North Atlantic Programs, which offer more than 300 courses during each eight-week term. While credit courses comprise the bulk of off-campus offerings, institutes, certificate programs, and in-service training programs, are also given.

Credit Courses

The College offers credit courses in the social and natural sciences, military science, the humanities, mathematics, engineering, and education. There are limited offerings in the technical areas.

In off-campus centers, such as Baltimore and military establishments, planned sequences of courses are offered. It is not always possible to offer a complete sequence of courses satisfying special curriculums at all centers.

Institutes and Short Courses

Adults whose primary interest is that of acquiring additional knowledge and skills in specialized fields should call the Director of Institutes.*

Institutes, short courses and educational programs specifically designed to meet the particular needs of a group may be arranged.

Certificate Programs

Single courses or sequences of courses leading to a certificate may be set up where university credit is not desired. Examples of this kind of program are as follows:

- Aerodynamics Course—Fairchild Aircraft Division
- Business Communications Institute
- Business Management Institute
- Correctional Administration Institute
- Forum on Community Planning for Cerebral Palsy
- Governor's Conference on Juvenile Delinquency
- In-Service Highway Engineering Program
- Institute on Careers in Mental Hospitals
- Institute on Chinese-American Cultural Relations
- Institute of Cosmetology
- Institute on Developing the Professional Educator
- Institute on Management Problems of the Small Business Firm
- Law Enforcement Institute
- Maryland Civil Defense Staff College
- Maryland Conference on Aging
- Maryland Guidance Conference
- Maryland Training Directors Conference
- Maryland Workshop on Economic Education
- Nursing Home Administration Institute
- Phi Alpha Theta Regional History Conference

*Warfield 7-3800, extension 541.

In-Service Training Programs

A number of in-service training programs involving credit or non-credit courses have been offered in the fields of labor-management, supervisory training, health and welfare, and social service.

Special Programs for Teachers

The staff of the Institute for Child Study of the College of Education offers for teachers a series of courses on human development and on the techniques of child study. The sequence of three courses, Child Development Laboratory I, II, and III, involves the direct year-long study of children as individuals and in groups. It is offered to teachers in the field through this College.

A series of community study courses offered in Baltimore and in several counties supplement the child development work by emphasizing the social environment of the child.

The College of Special and Continuation Studies, in cooperation with the College of Education, offers courses which fulfill the State Department requirements for certification.

ADVANCED STANDING

An official statement of Advanced Standing will be prepared, *upon request*, by the Director of Admissions when the following conditions are fulfilled:

1. Submission of a formal application for admission, including high school record.
2. Submission of official transcripts from all other institutions attended (including official transcripts from military service schools where applicable).
3. Submission of official G.E.D. test reports from USAFI (where applicable).
4. Completion of form D.D. 295 in duplicate (for military personnel).
5. Completion of twelve (12) semester hours of Maryland course work, with a minimum grade average of "C".

An unofficial evaluation will be prepared, *upon request*, as soon as the student's file in the office of the Director of Admissions is complete (items 1 through 4 above).

Credit by Correspondence

In adult programs of education at the University of Maryland, credit for correspondence courses from approved institutions is accepted toward **certain degrees** at the University of Maryland, providing this credit is accepted by the institution conducting the correspondence course as credit toward its own baccalaureate degrees.

Students must consult with their academic dean before enrolling in correspondence courses for transfer of credit to this University.

The amount of such credit by correspondence that can be accepted toward a degree at the University of Maryland may not exceed 12 semester hours.

Credit by Examination, including GED Credits*.

Credit towards the Bachelor's degree may be established by examination under the following conditions:

a. The applicant must have completed at the University of Maryland at least 12 semester credits with a minimum average grade of C before making the application for an examination to establish credit.

b. Usually credit by examination will not be accepted for any of the final 30 semester credits.

c. No more than 20 semester credits can be granted by examination except when a student takes GED credit. Students who establish 24 hours of credit by GED tests are ineligible for further credit by examination. A combination of credit by GED tests and by advanced standing examination may not total more than 24 hours. Non-degree students are not qualified to establish credit by examination.

d. A foreign student may not establish credit by examination in freshman or sophomore courses of his native language.

e. The fee for an advanced standing examination is \$5 per semester-hour credit.

Maximum Service School Credit

Credit earned by means other than regular class attendance in an approved degree-granting institution, excluding basic R.O.T.C. and physical activities and credit by examination including credit for General Educational Development (GED) tests, cannot be applied toward a degree at the University of Maryland in excess of 36 semester hours. This credit embraces credit for military education (Officers Candidate School), credit which might be transferred from service schools recommended by the American Council on Education, and credit earned by correspondence courses from approved institutions. The amount of such credit actually used for a degree at the University of Maryland depends upon the curriculum and college from which adult students elect to graduate.

STUDENT RESPONSIBILITY IN PLANNING A PART-TIME PROGRAM

Candidates for Degrees

Students taking credit work in this College will receive their degrees through the degree-granting colleges and the Graduate School. Work to be

*The following conditions govern credit granted for the completion of the General Education Development examinations:

Test	Scores	Course Equivalent	Credits
I	65	English 1 & 2	3, 3
II	60	Soc. 1, G & P 1	3, 3
III	61	General Science	6
IV	60	English 3, 4	3, 3

No credit will be given for English 3 and 4 until the requirements for English 1 and 2 are satisfied. English 8 or 14 will be required of all those who receive 12 hours of English credit by means of the GED examinations.

credited toward an undergraduate or graduate degree should be planned with advisers in colleges granting the degrees. Admission requirements for off-campus degree candidates are the same as for full-time day students at the University. Before registering, a candidate for a degree should be admitted to the University.

Each candidate for a degree must file in the office of the Registrar, eight weeks prior to the date he expects to graduate, a formal application for a degree.

Students earning their degrees in other colleges must transfer from the College of Special and Continuation Studies to their degree-granting college when registering for their last six hours.

Teacher Certification Requirements.

A student intending to qualify as a teacher in any city, county, or state should obtain a statement of certification requirements for that particular area and plan a program accordingly.

Maryland State Department of Education requirements provide that a teacher in service may present for certificate credit not more than *six semester hours of credit completed during a school year*.

Prerequisites

Students taking off-campus courses must have the approval of their advisers in degree-granting colleges to take any course for which prerequisites have not been fulfilled.

OFF CAMPUS LIBRARY SERVICE

With the cooperation of the University of Maryland library, the College of Special and Continuation Studies operates a mobile off-campus Library service. Scheduled bookmobile visits are made to off-campus centers where students may borrow library materials for collateral reading. In certain of the more distant off-campus centers, collections of approved books are placed in the local cooperating libraries or under the supervision of the course instructor as a convenience to the students.

Overseas, collateral reading materials are sent with the instructors from base to base in special book kits.



MARYLAND'S TRAVELING LIBRARY

University of Maryland students visiting the Bookmobile to obtain library books during the weekly stop-over at the Pentagon Building, Washington, D. C.

SECTION II

UNIVERSITY REGULATIONS REGARDING ADMISSION,
REGISTRATION, FEES, WITHDRAWALS, AND GRADES

CREDIT COURSES

Regular Admission

The admission requirements for part-time students who desire to become candidates for degrees are the same as for full-time students at the University. Before registering, a candidate for a degree must be admitted to the University. All students desiring to enroll in any of the degree-granting colleges must apply to the Director of Admissions of the University of Maryland at College Park or Baltimore depending on the location of the office at which they are registering for course work.

In selecting students more emphasis will be placed upon good grades and other indications of probable success in college rather than upon a fixed pattern of subject matter. In general, 4 units of English and 1 unit each of social and natural sciences are required. One unit each of algebra and plane geometry is desirable. While foreign language is desirable for certain programs, no foreign language is required for entrance. Fine arts, trade and vocational subjects are acceptable as electives.

For a more detailed statement of admissions, write the Director of Publications for a copy of the "General Information" issue of the catalog.

Those who seek graduate degrees should apply to the Dean of the Graduate School, College Park.

Provisional Admission

Students who are not sure that they wish to matriculate for degrees, may be admitted to the University on a provisional basis.

Classification of Students

Regular Students. Students who prior to their registration for work in the College of Special and Continuation Studies have been admitted to degree-granting colleges will be considered as students in good standing subject to academic regulations of the University. Students who desire to matriculate for a degree must be high school graduates or must present a high school equivalence certificate.

Students matriculated in other colleges of the University of Maryland on-campus may not transfer to the Bachelor of Arts degree curriculum in General Studies.

Special Students. Applicants who are at least twenty-one years of age, and who do not meet the regular entrance requirements, may be admitted to such courses as they seem fitted to take. *Special students are ineligible to matriculate for a degree until entrance requirements have been satisfied.*

Other categories of special students are: (a) those who wish to transfer their University of Maryland credits to another institution, or (b) take University of Maryland courses for self-improvement. These students may pursue any courses for which they have met the prerequisites.

Students who wish to take courses for transfer of credit to other institutions are advised to consult the institution from which they plan to receive their degrees.

Guidance

The student who wishes to pursue work toward a degree in a program administered by the College of Special and Continuation Studies must secure guidance and permission to take off-campus courses from an adviser in the college in which he wishes to obtain his degree.

Degrees

Credit courses taken under these conditions through the College of Special and Continuation Studies may be counted toward any of the degrees granted by the colleges of the University.

Quality of Credit Courses

Both instructors and courses in the College of Special and Continuation Studies are approved by appropriate department heads and deans and meet the same academic standards as courses and faculty on campus. Courses carry residence credit identical to that given for regular campus courses. Classes meet for sixteen weeks, making a total of 48 class hours for three-credit courses and 32 class hours for two-credit courses.

Course Load

Six semester hours is considered a full load for off-campus fully employed, part-time students. For exceptional adult students, up to nine semester hours may be approved providing the student's academic average for previous college work be not less than a 2.5 Honor Point Rating. (This means a grade average midway between a C and a B.) In case laboratory is involved no more than seven semester hours may be approved. On-campus part-time students taking courses through this college are governed by the same rules.

FEES

Credit Courses

Matriculation Fee	\$10.00
(Payable once at time of first registration by all students, full-time and part-time; candidates for degrees and non-candidates. Only one matriculation fee need be paid for each degree.)	
For Undergraduates	\$10.00
For Graduates	\$10.00
Tuition Charge per credit hour	\$10.00
a. Students enrolled for a full-time campus program, must pay \$10.00 per credit hour for courses taken off-campus in addition to regular campus fees.	
b. Maximum tuition charge per term for Graduate Students, \$100.00.	

LABORATORY AND OTHER FEES

Laboratory Fees Per Semester Course

Agricultural Engineering	\$3.00	Horticulture	5.00
Bacteriology	\$10.00 and 20.00	Industrial Education \$5.00 and	7.50
Botany	\$5.00 and 10.00	Journalism	\$3.00 and 6.00
Business Administration	7.50	Mechanical Engineering	3.00
Statistics	3.50	Music (applied music only)...	40.00
Chemical Engineering	8.00	Physical Activities Courses....	3.00
Chemistry	10.00	Physics—	
Education (Depending on		Lecture Demonstration	2.00
Laboratory) \$1.00, \$2.00,		Introductory	3.00
\$3.00,	5.00	All other	10.00
Practice Teaching	30.00	Psychology	4.00
Dairy	3.00	Office Techniques and Man-	
Electrical Engineering	4.00	agement	7.50
Entomology	3.00	Speech—	
Home Economics—		Radio and Stagecraft	2.00
(Non-Home Ec. Students)		All other	1.00
Practical Art, Crafts,		Zoology	8.00
Textiles and Clothing	3.00		
Foods and Home Manage-			
ment (each)	7.00		

The above laboratory fees will be charged whenever the availability of personnel, facilities, and other factors make it possible to offer laboratory instruction. If equipment other than that belonging to the University of Maryland is used, laboratory fees may not be charged, depending upon the arrangements that can be made with the cooperating party.

Miscellaneous Fees and Charges

Late Registration Fee

All students are expected to complete registration, including the filing of class cards and payment of bills, on the regular registration days.

Those who do not complete registration during the prescribed days will be charged a fee of..... \$5.00

Fee for Change in Registration (Substitution of one course for another, or increase in semester hour registration)*..... 3.00

Special Examination Fee—to establish college credit—per semester hour 5.00

Makeup Examination Fee

For students who are absent during any class period when tests or examinations are given 1.00

Transcript of Record Fee

No charge is made for first copy

Each additional copy 1.00

*This fee is not charged to part-time students who drop a course and do not substitute in its place another course carrying the same number of credit hours.

Property Damage Charge—Students will be charged for damage to property or equipment. Where responsibility for the damage can be fixed the individual student will be billed for it; where responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be pro-rated.

Library Charges:

Fine for failure to return book from general library before expiration of loan period per day .05

In case of loss or mutilation of a book, satisfactory restitution must be made.

Diploma and Graduation Fees

Diploma Fee for Bachelor's degree.....	10.00
Diploma Fee for Master's Degree.....	10.00
Graduation Fee for Doctor's Degree.....	50.00
Foreign Language Examination (first examination without charge).....	5.00

All fees, except Diploma Fee and Graduation Fee, are payable at the time of registration for each semester.

Diploma Fee and Graduation Fee must be paid prior to graduation.

Payment of Fees

All checks, money orders, or postal notes should be made payable to the University of Maryland.

SHORT COURSES AND INSTITUTES

Fees for short courses and institutes will be determined in terms of cost of each such short course or institute.

WITHDRAWAL AND REFUND OF FEES

Any student compelled to leave the University at any time during the academic year **must file**, in person or by letter, *a request for withdrawal*. The Dean of the College of Special and Continuation Studies will initiate and sign the necessary withdrawal forms and forward them to the office of the Registrar. If this is not done, the student will not be entitled to a certificate of honorable dismissal, and will forfeit his right to any refund to which he would otherwise be entitled. The date used in computing refunds is the date the application for withdrawal is filed in the office of the Dean of the College of Special and Continuation Studies, College Park or Baltimore, depending upon the office where the student enrolled.

Students withdrawing from the University will receive a refund of all charges, less the matriculation fee, in accordance with the following schedule:

Period from Date Instruction Begins—16 Week Semester.

2 weeks or less.....	80%
between 2 and 3 weeks.....	60%
between 3 and 4 weeks.....	40%
between 4 and 5 weeks.....	20%
over 5 weeks	0

Period from Date Instruction Begins—8-Week Term or Less

First week	60%
Second week	20%
Over two weeks	0

When regularly enrolled part-time students, for off-campus instruction, officially drop a course or courses and continue with one or more courses, they may receive a refund of 80% for the dropped courses if they are officially dropped prior to the third meeting of the class or classes.

GRADES

Marking System: The following symbols are used for marks: A, B, C, and D, Passing; F, Failure; I, Incomplete; W, Withdrawal; X, unofficial withdrawal in emergency circumstances, carries no prejudice, and cannot later be changed in the case of an Incomplete.

An average grade of "C" is required for the bachelor's degree.

REGISTRATION AT THE PENTAGON



JUST ONE BIG, HAPPY LINE-UP—This is the scene, repeated in scores of educational centers administered by CSCS for the University of Maryland all over the world. It's registration time. At the telephone (left) is Dr. Stanley J. Drazek, Associate Dean of CSCS. To his left is Dr. Ralph J. Kleip, Assistant to Dean Ray Ehrensberger of CSCS.

SECTION III

CURRICULA

Any curriculum of the University may be followed by the student enrolled in the College of Special and Continuation Studies. It is not always possible to offer the key courses in many of these curricula, however, for two principal reasons: (1) some courses require laboratories which cannot be established at all centers; (2) the number of students desiring a specialized course of study at a given center may not be large enough to justify its being given.

The University *requires that the last 30 semester hours be completed in residence* for a baccalaureate degree. Credit earned in the College of Special and Continuation Studies is residence credit. In case of hardships upon an adult student, the thirty-hour rule may be adjusted. An adult (or veteran) student who has an average of 2.50 may petition to take six of the last thirty hours required for a degree at some other institution of recognized high standing.

The curricula most frequently desired by off-campus students are offered in the following Colleges of the University: (1) College of Special and Continuation Studies, (2) Arts and Sciences, (3) Business and Public Administration, (4) Education, (5) Military Science, and (6) the Graduate School.

Requirements Common to All Curricula

Most curricula require 16 semester hours in Physical Education and R.O.T.C. in the freshman and sophomore years. These requirements are waived for adult, off-campus students.

All students (unless specific exceptions are noted in printed curricula) are required to take twelve semester hours of English (Eng. 1, 2, 3, 4 or Eng. 1, 2, 5, 6), three semester hours of sociology (Soc. 1—Sociology of American Life), three semester hours of government (G. & P. 1—American Government), and six semester hours of history (H. 5, 6—History of American Civilization).

COLLEGE OF SPECIAL AND CONTINUATION STUDIES

Telephone, Washington, D. C.

Exchange: WARfield 7-3800, extension 425, 434

The College of Special and Continuation Studies offers the Bachelor of Arts degree in General Studies. This degree program is designed to meet the educational needs of mature off-campus students and provides optimum latitude in program planning to meet individual needs.

The Bachelor of Arts degree in General Studies provides opportunity for programs in the area of the social sciences, with concentrations of study in such fields as: economics, history, government and politics, sociology, geography, psychology, and commerce. In special cases, and with permission of the dean, the student may elect concentrations in other areas.

The Bachelor of Arts degree in General Studies is administered in co-operation with the various academic deans and department heads. *Students matriculated in other colleges of the University of Maryland on campus may not transfer to the Bachelor of Arts degree curriculum in General Studies.*

Program for the Bachelor of Arts Degree in General Studies

Freshman and Sophomore Years

English 1, 2 and 3, 4 or 5, 6	12	semester	hours
Math or Science	6	"	"
Foreign Language*	12	"	"
Government and Politics 1	3	"	"
Sociology 1	3	"	"
History 5, 6	6	"	"
Speech 103, 104	6	"	"
Electives	12	"	"
	—		
Total	60	"	"

Junior and Senior Years

Primary Concentration from One Department			
100 Level Courses	15	"	"
Secondary Concentration from One or More			
Departments—100 Level Courses	21	"	"
Other Electives	24	"	"
	—		
Total	60	"	"

SUMMARY OF DEGREE REGULATIONS

The Bachelor of Arts degree in General Studies requires 120 semester hours of academic work for graduation.

All applicants for this degree must meet the same admission requirements as those applying for other undergraduate degrees at the University of Maryland.

During the third and fourth year, a student will elect a primary and secondary area of concentration. These areas would include the Department of Economics, History, Government and Politics, Sociology, Geography, Psychology and Commerce. In special cases, and with the permission of the Dean, the student may elect a primary concentration in other areas.

- a. **Primary Area**—A student must elect 15 hours of 100 level courses in a single department listed above.
- b. **Secondary Area**—A student must elect 21 hours of 100 level courses in one or more of the above listed departments or in departments that are related.
- c. A student must pursue work in related fields. Only a systematic program of courses will be approved. The Dean or the student's advisor will assist the student in mapping a program that involves a coherent concentration of work within a general framework of study.
- d. It is recommended that the 24 hours of elective credit in the junior and senior years include as many 100 level courses as possible.

*Students desiring an area concentration in Commerce may substitute Geography 1, 2, or 20, 21, and Economics 31, 32, for the language requirement.

Credit by Examination and GED Credit

College level General Educational Development (GED) credit will be awarded up to 24 semester hours to military personnel as governed by the University regulations and as explained in Section I of this catalog. Those persons who receive 12 semester hours of credit for English by satisfactorily passing GED tests I and IV will be required to validate this credit by completing English 8 or English 14. This English credit will be applied toward electives.

Civilians, who have special competencies, and who are unable to establish credit through the GED examinations may petition to establish by special examination a maximum of 20 semester hours. Regulations governing these examinations are explained in Section I of this catalog.

Advanced Standing

The maximum combined credit allowed toward this degree for GED examination credit, correspondence credit and service school credit shall not exceed 36 semester hours.

Correspondence Credit

A maximum of 12 semester hours of correspondence work will be accepted toward this degree from approved institutions, providing this credit is accepted by the institution conducting the correspondence course as credit toward its own baccalaureate degrees.

Service School Credit

Military Service School credit will be considered up to 12 semester hours. Basic ROTC, Advanced ROTC, Officer Candidate School Courses and Physical activities credits WILL NOT be included in the maximum 12 hours allowed for Military Service Credit. Only recognized Service School credits will be accepted, and must be validated by official transcript.

Graduate Study

It must be emphasized that in order to do graduate work, a student must elect enough 100 level courses within a single department to qualify for advanced work. The usual number required for entrance is 24 hours. Sufficient electives are available to enable a student to meet this requirement. Furthermore, the student is advised that the quality of work is of more importance than a specific number of courses.

Students desiring to pursue graduate studies should consult the Graduate School requirements in the area of their choice and plan their program accordingly.

COLLEGE OF ARTS AND SCIENCES

Telephone, Washington, D. C.

Exchange: WARfield 7-3800, extension 287

Degrees in the College of Arts and Sciences are based primarily upon major and minor concentrations rather than upon curricula. The student must meet the conditions set for both major and minor by the department in charge of his

major work. These requirements vary from one department to another. In general, they include a full year's work in the major subject (30 to 40 semester hours) and a half year's work in the minor (18 semester hours). The major department has authority over both the major and the minor. A general college requirement is that the student must have a "C" average in his major and a "C" average in his major and minor combined unless the major department sets a higher requirement.

Major work uniformly must be done in one department, as in history, sociology, or government and politics. Minor work need not be restricted to one department, provided the head of the major department approves of the individual courses taken. For example, a history major may take, as a part of his 18 semester hours of minor work, courses in such subjects as sociology, government and politics, psychology, and economics. The minor, however, must consist of a coherent group of courses, and the head of the major department must approve such a divided minor. Of the 18 semester hours required in the minor, at least six must be in one department in courses numbered 100 or above. The safest procedure, for the adult off-campus student, who is denied the privilege of registering each semester with the direct approval of the head of his major department, is to concentrate his minor work in one department. Thus, the major in history may take his 18 semester hours of minor work in sociology, or government and politics, or other comparable departments.

A student must acquire a minimum of 56 semester hours of academic work with an average grade of "C" or better before he will be permitted to take courses numbered 100 or above in his major or minor. A student who has established a "B" average in work done at this University may take courses numbered 100 or above after the completion of 48 semester hours of academic work. The student should be careful to avoid taking courses for which he does not have the prescribed prerequisites.

Before a student selects a major or minor, he should consult the head of the major department at College Park. It is this person alone, or his designated representative, who can give the candidate for the Arts and Sciences degree approval on major and minor requirements. Department heads are willing to answer by mail or telephone any inquiries from adult off-campus students majoring with their departments.

Majors offered in the College of Arts and Sciences are as follows:

- | | |
|---------------------------|-----------------------------|
| 1. American Civilization | 11. Government and Politics |
| 2. Art | 12. History |
| 3. Bacteriology | 13. Mathematics |
| 4. Botany | 14. Philosophy |
| 5. Chemistry | 15. Physics |
| 6. Comparative Literature | 16. Psychology |
| 7. Economics | 17. Sociology |
| 8. English | 18. Speech |
| 9. Foreign Languages | 19. Zoology |
| 10. Geography | |

Two considerations must be emphasized in connection with this listing of majors. In the first place, many science courses cannot be given at off-

campus centers where laboratory facilities are not available. And, in the second place, courses in specialized subjects cannot be offered at a given center if there is not a sufficiently large body of students to support them. For this latter reason, especially, it is not always practicable for a student to complete all degree requirements in specialized subjects off-campus. The Arts and Sciences majors which have been shown by experience to be most nearly attainable at off-campus centers are history, government and politics, and sociology.

It must be noted that no course generally required in the University may be counted toward a major or minor in the College of Arts and Sciences. Thus, the courses Government and Politics 1, Sociology 1, History 5 and 6, and the first two years of English may not be counted toward majors and minors. The twelve semester hours required in a foreign language and the twelve semester hours required in mathematics or science may not be counted toward the major or minor.

Requirements in Arts and Sciences

The following requirements are common to all majors in the College of Arts and Sciences.

1. English—twelve semester hours.
2. Foreign Language—twelve semester hours in one language. Students wishing to enroll in a language they have studied in high school will be given a placement test. A student who offers two units of a foreign language from high school will not receive credit in college for the first semester of the introductory course in that language.
3. Social Studies—twelve semester hours; Government and Politics 1, three semester hours; Sociology 1, three semester hours; History 5, and 6, six semester hours.
4. Speech—two to four semester hours depending upon the particular schedule.
5. Natural Science and Mathematics—twelve semester hours—at least one course must include laboratory experience and one course must be elected in each of the Divisions of Biological and Physical Sciences.

History Major

1. Every major in History is required to complete a minimum of 24 semester hours in advanced courses (courses numbered 100 or above), with the following exceptions: (a) the total may be reduced by 3 credit hours for those students who, in addition to the prerequisites, have taken 6 credits in other history courses under the 100 level; and (b) the total may be reduced by 6 credit hours for those who, in addition to the prerequisites, have completed 12 semester hours in history courses under the 100 level.

2. No less than 15 nor more than 18 semester hours of the 24 in advanced courses should be taken in any one field of history, *e. g.*, European, American, or Latin American.

3. Prerequisites for majors in History are History 5 and 6 (required of all students) and History 1 and 2.

4. All majors are required to take the proseminar (History 199) during their senior year. History 199, the proseminar, may be waived in hardship cases where the off-campus student cannot come to the campus or is unable to take this course at his off-campus center.

5. No grades of "D" in the major field will be counted toward completing the major requirements. An average grade of "C" must be maintained in the courses selected for a minor.

Sociology Major

1. Every major in Sociology is required to take 27 hours in Sociology exclusive of Sociology 1.

2. Required courses for Sociology majors are the following:

Sociology 2, Principles of Sociology

Sociology 183, Social Statistics

Sociology 186, Sociological Theory

Sociology 196, Senior Seminar

Sociology 196, the Senior Seminar, may be waived in hardship cases, where the off-campus student cannot come to the campus or is unable to take the course at his off-campus center.

3. No grades of "D" in the major field will be counted toward completing the major requirements.

Government and Politics Major

In addition to the regular University requirements, a student majoring in the field of Government and Politics must meet the following conditions:

1. Government and Politics 1, American Government, or its equivalent, is prerequisite to all the other courses offered by the Department. All persons majoring in Government and Politics must first complete this course with a grade of "C" or better.

2. All majors must take 33 hours of Government and Politics, exclusive of Government and Politics 1.

3. No grades of "D" in the major field will be counted toward completing the major requirements.

4. A student's program must include at least one course in each of five of the six following fields: (1) foreign and international, (2) local government, (3) public administration, (4) public law, (5) public policy and (6) political theory. Information as to the classification of Government and Politics courses in the fields may be obtained by application to a major adviser.

American Civilization Major

The program in American Civilization embraces a combined major-minor plan. The Committee in charge of the program consists of the heads of the departments of English, History, Government and Politics, and Sociology. Members of the committee serve as official advisers to students electing to

work in the field. The principal objectives of the work for majors are cultural rather than professional.

In choosing a curriculum, students are required to concentrate in one of the four departments primarily concerned with the program. A student following this curriculum must elect at least 18 hours of work at the 100 level in at least two of the departments represented in this program. Elective courses are, with the aid of an official adviser, chosen from courses offered in the humanities, in the social sciences, or in education. Normally, most elective courses are in history, English, foreign languages, comparative literature, economics, sociology, government and politics, and philosophy; but it is possible for a student to fulfill the requirements of the program and to elect as many as thirty semester hours in such subjects as art and psychology, provided that such work fits into a carefully planned program.

In his senior year, each major is required to take a conference course of six semester hours in which the study of American civilization is brought to a focus. During this course, the student analyzes eight or ten important books which reveal fundamental patterns in American life and thought and receives incidental training in bibliographical matters, in formulating problems for special investigation, and in group discussion.

Emphasis History

A student following this curriculum must elect at least 18 hours of work at the 100 level in at least two of the four departments represented in the program.

This curriculum is in some ways ideal for the off-campus student, in that it enables the student to move toward a degree with a minimum of semester hours in one department. There are, however, two principal obstacles to its usefulness to the off-campus student. First, not all courses offered by the departments mentioned above are applicable to this program. For example, the departmental adviser might not approve a course in medieval history for this program. A planned program for the individual student necessitates full agreement with advisers in one of the four departments directing the program. It is necessary for the student to understand fully what courses will fit into his program. Secondly, it may prove difficult, at a given center, to arrange for the conference course of six semester hours required in the senior year. If, however, a large enough group of students desire the course at a given time, it can be arranged.

Students interested in this program should consult with the Executive Secretary of the American Civilization Curriculum, Professor Carl Bode, Department of English, University of Maryland, College Park, Maryland.

Philosophy

The department's undergraduate courses are designed to help students attain philosophical perspective, clear understanding, and sound critical evaluation concerning the nature of man, his place in the universe, and the significance of the principal types of human experiences and activities. Students planning to major in Philosophy should consult the chairman of the department about preparation for the major.

Other Majors

Other majors in the College of Arts and Sciences are available as mentioned above. None of them are closed to adult off-campus students except in practical terms of (1) the difficulties in offering laboratory courses, and (2) an adequate number of students to support them at a given center during a given term. The work in history, government and politics, and sociology are emphasized above only because experience with off-campus offerings has shown them to be most nearly feasible as off-campus majors.

COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

Telephone, Washington, D. C.

Exchange: WARfield 7-3800, Extension 346

The College of Business and Public Administration is fully accredited by the American Association of Collegiate Schools of Business. Among the curricula it offers are the following:

1. General Administration
2. Accounting and Statistics
3. Financial Administration
4. Industrial Administration
5. Insurance and Real Estate
6. Marketing Administration
7. Personnel Administration
8. Transportation Administration
9. Foreign Service and International Relations
10. Journalism and Public Relations
11. Office Techniques and Management

For the details of these curricula, the student should consult the catalog of the College of Business and Public Administration. Most important, in addition to the regular university requirements, are the following:

1. Most curricula require the following courses:

B.A. 10 and 11	Organization and Control
B.A. 20 and 21	Principles of Accounting
Econ. 4 and 5	Economic Developments
Econ. 31 and 32	Principles of Economics
G. & P. 1	American Government
H. 5 and 6	History of American Civilization
Math. 5	General Mathematics
Math. 6	Mathematics of Finance
Soc. 1	Sociology of American Life

2. A student must acquire a minimum of 56 semester hours of academic work with an average grade of "C" or better before he will be permitted to take courses numbered 100 or above. A student who has established a "B" average in work done at this University may take courses numbered 100 or above after the completion of 48 semester hours of academic work, providing he has the necessary prerequisites.

3. The curricula in Business Administration are specialized, as the above list indicates. As in the cases of some other curricula and Arts and Sciences majors it is not always possible to complete these curricula at off-campus centers operated by the College of Special and Continuation Studies. Any course in any curriculum may be given, however, if an adequate number of students desire it at a given time and center.

COLLEGE OF EDUCATION

Telephone, Washington, D. C.

Exchange: WARfield 7-3800, Extension 234

The College of Education offers curricula for students of Education and for teachers in service. Education curricula and advisers are as follows:

1. Academic Education
 - English—Marie D. Bryan
 - Foreign Languages—Fern D. Schneider
 - Mathematics—Henry Brechbill
 - Natural Sciences—Henry Brechbill
 - Social Sciences—Kenneth O. Hovet
 - Speech—Warren L. Strausbaugh
2. Agricultural Education (under the College of Agriculture)—Arthur M. Ahalt
3. Art Education—Vienna Curtiss
4. Business Education—Arthur S. Patrick
5. Elementary Education—Alvin W. Schindler, Marie Denecke, Glenn O. Blough, Leo W. O'Neill
6. Home Economics Education—Mable Spencer
7. Industrial Education—R. Lee Hornbake, Glen D. Brown
8. Music Education—Mary A. Kemble
9. Nursery School—Kindergarten Education—Edna B. McNaughton, Margaret A. Stant
10. Physical Education (Men)—Albert W. Woods
11. Physical Education (Women)—Dorothy Mohr

Specific curriculum requirements may be obtained from the College of Education catalog.

Only a few of the curricula are described below. The College of Education Catalog should be consulted for full descriptions and requirements of all curricula listed above.

Off-campus Courses in Education

The College of Special and Continuation Studies offers courses in education to permit students to complete a part of the work required for a bachelor's degree, to enable graduate students to work toward advanced degrees, and to fulfill or renew the Maryland State Department of Education certification requirements. Education courses are offered most frequently at the Baltimore Center and at centers at the seats of the various counties in Maryland.

Elementary Education Curriculum for Undergraduate Teachers

This curriculum is for teachers who have completed a two- of three-year curriculum in a teachers college. It is also for teachers who have two or more years of successful teaching experience which can be used in lieu of student teaching to meet certification requirements.

This curriculum, leading to the Bachelor of Science degree in elementary education, requires a total of 128 semester credits. The last 30 credits earned before the conferring of the degree must be taken with the University of Maryland.

Industrial Education

Three curricula are administered by the Industrial Education Department: (1) Industrial Arts Education, (2) Vocational-Industrial Education, and (3) Education for Industry.

The Industrial Arts Education curriculum prepares people to teach industrial arts at the secondary level. It is a four-year professional program leading to a Bachelor of Science degree.

The Vocational-Industrial curriculum may lead either to certification as a vocational-industrial teacher, with no degree involved, or to a Bachelor of Science degree including certification. The University of Maryland is designated as the institution which shall offer the "Trade and Industrial" certification courses and hence the courses which are offered are those required for certification in Maryland. The Vocational-Industrial curriculum requires trade competence as specified by the *Maryland State Plan for Vocational Education*. A person who aspires to take the certification courses should review the State plan and he may well contact Maryland State Department of Education officials. If the person has in mind teaching in a designated city or county he should discuss his plans with the vocational-industrial official of that city or county inasmuch as there are variations in employment and training procedures.

A total of 240 clock hours of instruction (sixteen semester hours) is required for vocational-industrial teacher certification. The courses required for certification are reviewed and revised periodically by officials of the State Department of Education and the Baltimore City Department of Education. At the present time the courses listed below are required:

Ind. Ed. 50—Methods of Teaching

Ind. Ed. 60—Observation and Demonstration Teaching

Ind. Ed. 164—Shop Organization and Management

Ind. Ed. 168—Trade or Occupational Analysis

Ind. Ed. 169—Course Construction

Ind. Ed 170—Principles of Vocational Education, or

Ind Ed. 171—History of Vocational Education

The remaining hours may be met through elective courses approved by the student's adviser.

The Education for Industry curriculum is a four-year program leading to a Bachelor of Science degree. The purpose of the program is to prepare persons for jobs within industry and, as such, it embraces four major areas of competence, (a) technical competence, (b) human relations and leadership competence, (c) communications competence, and (d) social and civic competence. The student who is enrolled in this curriculum is required to obtain work in industry in accordance with the plan described in the course, Industrial Education 124, a.b. Consult course descriptions in the back section of this catalog.

COLLEGE OF

PHYSICAL EDUCATION, RECREATION, AND HEALTH

Telephone, Washington, D. C.

Exchange: WARfield 7-3800, Extension 252

The degree of Bachelor of Science is conferred upon students who have met the conditions of their curricula as herein prescribed by the College of Physical Education, Recreation, and Health. Candidates enrolled in the College of Education with a major in Physical Education or Health Education receive a Bachelor of Science degree upon fulfillment of the requirements as prescribed by that College.

Certain curricula in the College of Physical Education, Recreation, and Health, such as Recreational Leadership and Physical Therapy, are not planned to meet state certification requirements.

Each candidate for a degree must file in the Office of the Registrar eight weeks prior to the date of graduation, a formal application for a degree.



SPRING TERM BOOTSTRAPPERS—These are the students—50 in all—who have been confining on campus in College Park the courses they undertook elsewhere. From left, first row: Maj. Merrill H. Seaman, CWO Atwine H. Doyle, Capt. Walter P. Hooker, Maj. Edwin M. Wehrman, Col. Walter M. Bridgers, Lt. Col. Louis J. Ciccoli, Assistant to the Dean of Military Science; Dr. Wilson H. Elkins, President of the University; Col. Joseph R. Ambrose, Dean of the College; Col. James Regan, Jr., Assistant Dean; Col. Alfred R. Gill, Maj. Anna M. McKim, Maj. Joseph T. Barry, Maj. Lewis L. Bradley.

Second row: Maj. Charles H. McCracken, Capt. David B. Bogle, Capt. Thomas L. Wilson, Lt. Col. Robert C. Stue, Maj. Charles F. Smith, Jr., Capt. Ernest J. Kulk, Maj. Gayford L. Fletcher, Capt. William B. Jakeway, Maj. John P. Daly, Jr., Capt. John J. Shaughnessy, Maj. Fred W. Young.

Third row: Maj. Gregory Q. Stanley, Capt. Ewell D. Jacobs, Maj. William G. Richardson, Capt. Clyde P. Evely, Maj. James P. Muhlall, CWO Charles A. Leshner, Capt. Earl W. Holzscher, 1st Lt. Felix H. Jewell, Maj. John D. Long, Maj. Gilbert E. Meyer, Lt. Col. Howard J. Christiansen, Maj. Walter W. Bennett, M/Sgt. George M. MacLeod.

Fourth row: Maj. William R. Logan, Jr., Maj. Emanuel Glickman, Maj. Gordon C. Preller, Maj. Edward J. Cadger, Maj. William J. Cashman, Lt. Col. Michael Oudo, Maj. Steve N. Pisanos, Capt. Thomas F. Kirwan, Capt. Marquis C. Tatman, Maj. Henry A. Hale, Capt. Albert G. Whitley, Lt. Col. Robert J. Hennessy, Maj. Lee E. Stubblefield, Maj. Felix L. Barsanti, Jr., Lt. Col. Fred E. Kyer.

COLLEGE OF MILITARY SCIENCE

Telephone, Washington, D. C.

Exchange: WARfield 7-3800, Extension 261

The College of Military Science offers courses of study designed primarily for armed services personnel or those desiring to follow military careers. Its curricula are given below. These curricula are pursued usually at centers maintained at military installations.

CURRICULA

Two curricula are offered by the College of Military Science—The Military Affairs Curriculum and the Curriculum in Military Science. These curricula lead to the degree of Bachelor of Science, providing the student maintains a grade average of not less than "C". The requirement for Junior standing is attained in these curricula when the student has completed 72 hours with a grade average of not less than "C".

The primary purpose of the Military Affairs Curriculum is to offer to those interested students a broad education in subjects pertinent to military and public affairs, with emphasis on government and politics, history and military science.

The primary purpose of the curriculum in Military Science is to educate men who desire to follow a military career. As a prerequisite for completion of this curriculum, a student must have satisfactorily held or presently hold a commission in one of the Armed Forces, or possess those physical and mental requirements which can lead to a commission in one of the Armed Forces. The completion of the Advanced Air Force R.O.T.C. courses also satisfies this requirement.

The first two years of these curricula are common.



GRADUATE STUDIES

A student wishing to pursue graduate studies upon the completion of the Bachelor of Science degree from this college should plan to use the electives in his curriculum as a major in some one of the departments open to him, such as, history, government and politics, sociology, economics, and the like. This major must be arranged under the advisement of the head of the department concerned and the Dean of the College of Military Science.

Common Freshman and Sophomore Years

	Semester	
	I	II
<i>Freshman Year</i>		
*Eng. 1, 2—Composition and Reading in American Literature....	3	3
*Soc. 1—Sociology of American Life.....	...	3
*G. & P. 1—American Government.....	3	...
*Speech 1, 2—Public Speaking.....	2	2
Math. 10, 11—Algebra, Trigonometry, Analytic Geometry.....	3	3
or		
Math. 5, 6—General Mathematics, Mathematics of Finance.....		
Modern Language.....	3	3
†A. S. 1, 2—Basic Air Force R. O. T. C.....	3	3
†Physical Activities.....	1	1
Total	18	18

Sophomore Year

*Eng. 3, 4 or 5, 6—Composition and Reading in World Literature	3	3
Hist. 5, 6—History of American Civilization.....	3	3
*Speech 5, 6—Advanced Public Speaking.....	2	2
*Physics 1, 2—Elements of Physics.....	3	3
Modern Language.....	3	3
†A. S. 3, 4—Basic Air Force R. O. T. C.....	3	3
†Physical Activities	1	1
Total	18	18

*Credit by examination may be permitted for these courses upon successful completion of the college level General Educational Development Tests. Students who receive 12 credit hours in English by this means are required to complete English 8 or English 14. The credits earned in either of these courses may be used as electives.

**Adult off-campus students may substitute Speech 103 and 104, Speech Composition and Rhetoric (3, 3) for Speech 1, 2, (2, 2), and Speech 5, 6, (2, 2). In such substitutions, the deficient two hours will be made up in electives.

†Credit allowed for equivalent service in the Armed Forces. Waived for adult off-campus students.

††Credit allowed to those holding Regular, Reserve or National Guard commissions. Students who do not wish to present these subjects for this degree and who have completed acceptable Service Extension Courses at the Officer Candidate level, or its equivalent, may substitute therefore an equivalent number of hours in Government and Politics and History, in courses numbered 100 or above, of which twelve hours must be in one field.

‡Students with Commissioned Officer Service may be relieved of this subject and pursue advanced studies in lieu thereof. Credit is allowed to those students having had one (1) year or more on active duty status as a commissioned officer in the regular reserve or National Guard.

***Military Science Curriculum**

	Semester	
	I	II
Junior Year		
†Speech 127, 128—Military Speech and Command.....	2	2
Speech 133—Staff Reports, Briefings and Visual Aids.....	...	3
Econ. 31, 32—Principles of Economics.....	3	3
Soc. 2—Principles of Sociology.....	3	...
††A.S.101, 102—Advanced Air Force R.O.T.C.....	3	3
Electives	6	6
Total.....	17	17
Senior Year		
M.S. 151—Military Logistics.....	...	3
†M.S. 152—Military Leadership.....	...	3
M.S. 153—Military Policy of the United States.....	3	...
M.S. 154—Management of the Military Establishment.....	3	...
One of the following:		
G. & P. 101—International Political Relations.....	3	...
G. & P. 102—International Law.....		...
G. & P. 106—American Foreign Relations.....		...
G. & P. 154—Problems of World Politics.....		...
G. & P. 197—Comparative Governmental Institutions.....		...
††A.S. 103, 104—Advanced Air Force R.O.T.C.	3	3
Electives	3	6
Total.....	15	15

Electives must be taken under advisement and in terms of the objectives of this curriculum.

The Military Affairs Curriculum

Junior Year		
Speech 133—Staff Reports, Briefing and Visual Aids.....	3	...
Econ. 31, 32—Principles of Economics.....	3	3
Soc. 2—Principles of Sociology.....	...	3
G. & P. 101—International Political Relations.....	3	...
G. & P. 102—International Law.....	...	3
Hist. 127, 128—Diplomatic History of the U. S.....	3	3
Electives	6	3
Total	18	15

Senior Year		
M.S. 151—Military Logistics.....	...	3
M.S. 153—Military Policy of the U. S.....	3	...
G. & P. 106—American Foreign Relations.....	3	...
G. & P. 154—Problems of World Politics.....	...	3
Hist. 175, 176—Europe in the World Setting of the 20th Century	3	3
Geog. 190—Political Geography.....	...	3
Electives	7	3
Total	16	15

Electives must be taken under advisement and in terms of the objectives of this curriculum.

*See footnotes on Page 48.

SCHOOL OF NURSING

Telephone, Baltimore, Maryland

Exchange: PLaza 2-1100, Extension 751 or 752

The specific objectives of this program are to bring up to full collegiate level the basic nursing preparation of graduates of three year diploma schools, and to supply the non-professional courses considered desirable as a basis for further cultural and professional education.

Graduate nurses who have completed a three year program in an approved school of nursing, and who have successfully passed the Maryland State Board Examination for Registration of Nurses, or the equivalent and have qualified as registered nurses and meet the admission requirements of the University of Maryland may pursue studies in the School of Nursing leading to the degree of Bachelor of Science in Nursing.

Advance Standing Credit

Advance standing involving a maximum of 45 credits is determined by the applicant's Nursing School record and the results of the Graduate Nurse Qualifying Examination of the National League for Nursing.

REQUIREMENTS

General Requirements

	Semester Hours
Eng. 1, 2—Composition and American Literature.....	6
Eng. 3, 4—Composition and World Literature.....	6
Eng. 5, 6—Composition and English Literature.....	6
G. & P. 1—American Government.....	3
Soc. 1—Sociology of American Life.....	3
Hist. 5, 6—History of American Civilization.....	6

Science Requirements

Bact. 1—General Bacteriology	3 or 4
Bact. 101—Pathogenic Bacteriology	3 or 4
Chem. 1, 3 or 11, 13—General Chemistry.....	8 or 6

Nursing Requirements

Pub. H. 153—Public Health	2
Nurs. 9—Nursing the Child in Health.....	2
Nurs. 108—Applied Psychology	3
Nurs. 156—Public Health Nursing I.....	2
Nurs. 157—Public Health Nursing II (field experience).....	4

Nurs. 153—Public Health	3
Nurs. 154—Management of a Nursing Unit.....	2
Nurs. 158—Biostatistics	3
Nurs. 199—Pro-Seminar	3

Additional Requirements

Psych. 1—Introduction to Psychology.....	3
Sp. 1—Public Speaking	2
Sp. 10—Group Discussion	2
Ed. 90—Development and Learning.....	3
P. E. 160—Scientific Basis of Movement Applied.....	3
Nut. 114—Nutrition for Health Service.....	3
Soc. 64—Courtship and Marriage.....	3

Electives

Electives may be selected after consultation with the advisor in the areas of psychology, sociology, education, and nursing.

A total of 128 semester credits are necessary for the degree, the last 30 semester hours of which must be taken in the University of Maryland.



REPORT TO THE CLASS—Miss Pat Bean, student nurse under the University's Program, reads her paper on one subject covered by the course in Principles and Methods of Public Health Nursing. At lower right is Miss Helen Fisk, instructor.

OPERATION EDUCATION

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ARMED FORCES EDUCATION
PROGRAM



HEIDELBERG
Overseas Headquarters
UNIVERSITY OF MARYLAND

WHILE YOU SERVE

GRADUATE SCHOOL

Telephone, Washington, D. C.,

Exchange: WARfield 7-3800, Extension 232

Master's and doctor's degrees are given by most of the departments at the University. Graduate programs are administered by the Graduate School in cooperation with the various departments. Students are admitted to the Graduate School only if (1) they hold baccalaureate degrees and (2) their previous work is in quality and extent acceptable to the department in which they desire to work. Normally a "B" average is required.

A student pursuing a graduate program should keep constantly in touch with the graduate adviser of his major department.

It is sometimes difficult to proceed toward graduate degrees at off-campus centers conducted by the College of Special and Continuation Studies. Library and laboratory facilities are not always available at off-campus centers. Many of the departments require that a certain number of courses be completed on the campus. Furthermore, graduate work is highly specialized, and the number of students desiring particular courses at a given time and center is seldom large. If the circumstances are favorable, however, graduate work in some fields can be offered off-campus.

Courses may be taken for graduate work only if the student has been admitted to the Graduate School. A student may be admitted to CSCS classes as a "Graduate Student Pending" and receive graduate credit, provided he is admitted to the Graduate School before the course is completed.

Graduate degrees are awarded at the completion of an individually planned course study. The student must register for each course in full consultation with the departmental adviser concerned. In general, the master's degree is based upon a division of work between a major and a minor. A minimum of half the required courses for this degree must be taken in courses numbered 200 or above. These courses are open only to graduate students. The remaining courses required for the degree may be taken in courses numbered between 100 and 199. These courses are open to juniors and seniors as well as to graduate students. Courses taken for undergraduate credit may not be counted toward graduate degrees. Information regarding the requirements for all advanced degrees may best be obtained from the Graduate School Catalog and by consultation with the head of the department concerned.

The College of Special and Continuation Studies arranges extensive graduate course programs at several centers. The programs in the various counties and at Baltimore frequently include graduate courses in Education. Graduate courses in mathematics and the sciences are offered at the Aberdeen Proving Ground, Bureau of Ships, David Taylor Model Basin, National Bureau of Standards, Naval Ordnance Laboratory, Naval Research Laboratory, and Patuxent (Naval Air Test Center.)

Occasionally graduate courses in the social sciences, particularly history, government and politics, and sociology, are offered at other centers.

SECTION IV

CENTERS

The College of Special and Continuation Studies provides educational programs in the counties, in Baltimore, in various Air, Army, Navy, and other governmental agencies, and in industrial establishments.

Classes are offered at centers ranging from Grantsville, approximately 160 miles west of College Park, to Worcester County, which borders on the Atlantic Ocean.

Centers also range from counties bordering on Pennsylvania to Patuxent in Southern Maryland.

During the 1955-1956 school year, programs were offered at the fifty-three stateside centers listed below:

*Aberdeen Proving Ground	*Glen Burnie
Andrews Air Force Base	Grantsville
*Annapolis	Hagerstown
*Baltimore	Hancock
*Bel Air	*Holabird (Fort)
Bolling Air Force Base	Langley Park
Building T-8	La Plata
Bureau of Ships	Maritime Administration
Campus (College Park)	*Maryland Penitentiary
Cambridge	Montgomery Blair
Centreville	Montgomery Hills
Chestertown	National Bureau of Standards
Crisfield	Naval Ordnance Laboratory
Cumberland	Naval Research Laboratory
David Taylor Model Basin	Patuxent (Naval Air Test Center)
Denton	Pentagon
Detrick (Fort)	Prince Frederick
District of Columbia,	Princess Anne
Recreation Department	*Reisterstown
*Dundalk	Rockville
Easton	Salisbury
*Ellicott City	Silver Spring
*Friendship Airport	Suitland
Fort McNair	*Towson
Fort Meade	University Park
Fort Ritchie	Walter Reed (Army Hospital)
Frederick	*Westinghouse

*Courses at these centers are administered through the Baltimore office, Lombard and Greene Streets, Baltimore 1, Maryland.

A schedule of courses for each of the centers described is available approximately six weeks prior to the beginning of each semester.

HUMAN DEVELOPMENT EDUCATION

Human Development laboratory courses are offered in many states throughout the country. These courses are given by the Institute for Child Study and registrations are administered by the College of Special and Continuation Studies.

During the 1955-1956 school year students in the following states enrolled in this program for credit:

Alabama	Florida	Maryland	Pennsylvania
Arkansas	Georgia	New Jersey	South Carolina
California	Kentucky	New York	Virginia
District of Columbia	Louisiana	Ohio	

COUNTY PROGRAMS FOR TEACHERS

The College of Special and Continuation Studies offers courses in nearly every county in Maryland. The specific courses and their locations depend on the requests made by County Superintendents of Education, their Supervisors and Assistants, and teachers. The actual courses presented will depend on local interest and support of specific courses. Experience has shown that at least two months are required to arrange courses at off-campus centers. The courses are normally scheduled concurrently with campus courses. See Section I for further details. For information concerning registration, contact the College of Special and Continuation Studies, or the County Superintendent of Education.

Courses have been offered in the counties indicated below:

Allegany—Cumberland

Anne Arundel—Annapolis, Glen Burnie

Baltimore—Dundalk, Reisterstown, Towson

Calvert—Prince Frederick

Caroline—Denton

Charles—La Plata

Dorchester—Cambridge

Frederick—Frederick

Garrett—Grantsville

Harford—Aberdeen and Bel Air

Howard—Ellicott City

Kent—Chestertown

Montgomery—Montgomery Blair High School, Montgomery Hills, Rockville, Silver Spring

Prince Georges—College Park and Frederick Sasser High School
Queen Annes—Centreville
Somerset—Princess Anne
St. Mary's—Leonardtown
Talbot—Easton
Washington—Hagerstown
Wicomico—Salisbury
Worcester—Snow Hill

Teachers interested in having a program in Education started in their county or community should make their requests known to this college through their county Superintendent of Schools or some other school official.

Child Study

The staff of the Institute for Child Study, College of Education, offers in each county a series of courses on human development and on the techniques of child study for members of the educational profession. The sequences of three courses called Child Development Laboratory I, II, and III involve the direct year-long study of children as individuals and in groups and are offered to teachers in the field. Teachers should contact their county Superintendent of Schools for offerings in their community. Graduate courses in Human Development are also available in a few of the counties.

Community Study

During the past year, three separate courses in community study Ed. 163, 164, 165 were offered at six locations in Baltimore and Montgomery counties. These courses dealt with the study of local community problems and their influence upon the child, the school, and the home.

The complexity of this program prohibits its being offered in a number of centers. Teachers interested in this program should direct their inquiries to the Dean of this college.

ABERDEEN PROVING GROUND

Courses offered at the Aberdeen Proving Ground are planned to meet the educational needs of military and civilian personnel of the Aberdeen-Edgewood area. During the past year, courses in business administration, economics, English, history, languages, government and politics, mathematics, military science, psychology and speech were offered. A regular sequence of courses is arranged to permit Army personnel to pursue degrees in Military Science.

The Army Information and Education Office at the Proving Ground assists the University in planning this program.

Civilians may enroll if they can secure special passes from the military post concerned.

Further information regarding this program may be obtained from Captain Robert M. Johnson, Chief I. and E. Officer or Mr. George Baker, Educational

Adviser, telephone: Aberdeen 1000, Extension 27185, or the Baltimore office of CSCS, PLaza 2-1100, Extension 292, 293.

ANDREWS AIR FORCE BASE

During the 1951 spring semester an educational program was initiated at Andrews Air Force Base. The education office at Andrews, with the cooperation of this College, plans the program for Andrews several months in advance of each semester.

The past semester's offerings included courses in business administration, economics, English, foreign languages, government and politics, history, mathematics, military science, psychology, sociology, and speech. Officers and airmen enroll in the various courses to pursue military science and other degrees.

The Andrews educational program complements that of Bolling Air Force Base. Personnel may enroll at either installation or they may enroll concurrently at both.

Further information may be obtained from Mr. Murphy Mears, Director of Education, REDwood 5-8900, Extension 4222, or this College.

BALTIMORE

EDWARD F. COOPER, M.A., *Director, Baltimore Office**

MARY K. CARL, Ph.D., *Educational Advisor*

An office of the College of Special and Continuation Studies is maintained in the Administration Building, University of Maryland, Baltimore, at Lombard and Greene Streets, to serve as headquarters for the largest center of the College. This office also administers the programs in the environs of Baltimore.

During the academic year 1955-1956, over fifteen hundred students from Baltimore City and surrounding counties were enrolled in some 100 different courses. Students are currently working on degrees in several undergraduate colleges and in the Graduate School of the University.

Scope of Offerings

The plan of the Baltimore Office each semester is to offer courses in the various natural and physical sciences, business administration, economics, education, government and politics, geography, history, industrial education, languages, philosophy, psychology, sociology, speech and English that may be applied toward meeting the requirements of the various undergraduate and graduate degree programs of the University.

Institutes and short courses upon request may be provided to meet the specialized educational needs of vocational and avocational groups.

*Telephone: PLaza 2-1100, Extension 292, 293, Evenings: PLaza 2-8355.

Service to Business, Industrial and Professional Groups

In addition to the regular academic offerings listed above, this College provides opportunities for specialized institutes, short courses, certificate programs, in-service training programs, and consultant services, that are specifically designed to meet the educational needs of business, industrial and professional groups.

Education

The College of Education supports a steadily expanding offering for teachers and school officials in Baltimore City and in surrounding counties.

Courses are offered which teachers may apply toward bachelor's degrees and master's degrees in education and/or to meet certification requirements.

Those teachers planning to enroll in courses for the purpose of meeting certification requirements are advised to consult with the State Department of Education and/or their local school supervisor.

Students pursuing degree programs are advised to consult with their faculty advisor.

Child Study

The staff of the Institute for Child Study, College of Education, offers each year a series of courses on Human Development, and on the techniques of child study for members of the educational profession. The sequences of three courses called Child Development Laboratory I, II, and III, which involve the direct year-long study of children as individuals and in groups, are offered to teachers in the field. Teachers should contact their Boards of Education for offerings in their community. Graduate courses in Human Development are also available through cooperation of the Institute.

Community Study

With the cooperation of the Departments of Education of the City of Baltimore, and Baltimore County, a series of community study courses are offered to supplement the child development work by presenting the social environment of the child. University courses dealing with city and community organization and structure are regularly scheduled to enrich the community study program.

Nursing

The School of Nursing, through the College of Special and Continuation Studies, offers a program for graduate nurses leading toward a Bachelor of Science degree in Nursing.

For further information, nurses should contact the Director of Graduate Nurse Studies, College of Special and Continuation Studies, University of Maryland, Lombard and Greene Streets, Baltimore 1, Maryland.

Industrial Education

Courses conducted in the Baltimore Center by the Industrial Education Department are selected from the total offerings which constitute the three

curriculums administered by the Department; namely, the Industrial Arts curriculum, the Education for Industry curriculum and the Vocational-Industrial teacher certification curriculum. Courses required for Vocational-Industrial teacher certification are arranged in a two-year cycle so that these persons may obtain the necessary course work within two years.

BOLLING AIR FORCE BASE

An extensive educational program is offered at the Bolling Air Force Base each semester and during each summer session. The education office at Bolling, with the cooperation of this College, plans each program several months in advance.

The past years offerings included courses in business administration, economics, education, English, foreign languages, government and politics, history, mathematics, military science, psychology, sociology and speech. Officers and airmen enroll in the various courses to pursue military science and other degrees.

The Bolling educational program complements that of the Andrews Air Force Base. Personnel may enroll at either installation or they may enroll concurrently at both.

Further information may be obtained from Mrs. Lois K. Roberts, Education Services Officer, JOhnson 2-9000, extension 679 and 348, or this College.

BUILDING T-8, WASHINGTON, D. C.

The education program offered at Building T-8 is planned for military and civilian personnel located in the building.

During the past year courses in economics and government and politics were offered.

Further information may be obtained from Major Howard S. Wilson, Building T-8, Room 1411, telephone EMerson 2-9600, extension 530, or this College.

BUREAU OF SHIPS, DEPARTMENT OF THE NAVY

18th and Constitution Ave., N. W., Washington, D. C.

The educational program at the Bureau of Ships is designed to aid Navy engineers and scientists to work toward degrees in engineering, physics, and mathematics. This program is offered in cooperation with the training divisions in the Navy bureaus and this College.

During the past year, advanced courses were offered in mechanical engineering and mathematics.

Further information may be obtained from Mrs. Edna K. Trudeau, Training Officer, Room 2431 Main Navy, LIberty 5-6700, extension 66936, or this College.

FORT DETRICK—FREDERICK, MARYLAND

The educational program at Camp Detrick is planned to advance the technical knowledge of the personnel employed at this post. This program is planned by the Detrick Education Office and this College.

During the past year courses were offered in agronomy, bacteriology, business administration, chemistry, chemical engineering, English and mathematics.

Further information relative to this program may be obtained from Miss Veronica Catlett, Project Officer, Frederick, MONument 3-4111, extension 2247, or this College.

DAVID TAYLOR MODEL BASIN—NAVY DEPARTMENT

Carderock, Maryland

A program of graduate study in fluid mechanics, aeronautical engineering, mechanical engineering, physics and mathematics is offered at the David Taylor Model Basin, under the sponsorship of the Glenn L. Martin College of Engineering and Aeronautical Sciences of the University of Maryland.

Courses in aeronautical engineering, mathematics, mechanical engineering and physics, were offered during the past year. These courses were intended to review mathematical methods and physical principles.

Further details about this program may be obtained from Mr. W. H. Struhs, Head of Training and Safety Branch, OLiver 4-2600, extension 394, or this College.

FORT GEORGE G. MEADE—HEADQUARTERS SECOND ARMY

Courses offered at Fort Meade are designed to meet the educational needs of military and civilian personnel at this post. A regular sequence of courses is arranged for each semester to permit Army personnel to pursue the Military Science degrees.

During the past year courses in English, geography, foreign languages, government and politics, history, mathematics, military science, psychology and speech were offered.

Further information may be obtained from Major David T. Morgan, T. I. & E. Officer, ORchard 4-3311, extension 2588, or Mr. David C. Berry, Director of Education, Army Education Center, ORchard 4-3311, extension 2575, or this College.

FORT HOLABIRD

Courses offered at Fort Holabird are planned to meet the educational needs of the military and civilian personnel at this installation. A sequence of courses is arranged to permit Army personnel to pursue the Military Science degrees.

During the past year courses were offered in government and politics, mathematics, military science, foreign languages, and speech. Since Fort Holabird is located a short distance from Baltimore many of the military and civilian personnel find it desirable to enroll concurrently in Baltimore and Holabird courses. This arrangement permits a wider selection of courses.

Further information may be obtained from 2nd Lt. John W. Dolezal, Jr., Chief T. I. & E., or Mr. Gustaf Berglund, Education Adviser, I. & E. Office, Fort Holabird, MEDford 3-9000, extension 2110, or the Baltimore office of this College. PLaza 2-1100, extension 292, 293.

FORT RITCHIE—CASCADE, MARYLAND

Courses offered at Fort Ritchie are designed to meet the educational needs of military and civilian personnel located at this post.

During the past year courses in English, history and speech were offered.

Further information may be obtained by writing to Major James W. Boring, T. I. & E. Officer, Fort Ritchie, Cascade, Maryland, or telephoning Hlghfield 360, extension 41103, or this College.

NATIONAL BUREAU OF STANDARDS

Connecticut Avenue at Upton Street N. W., Washington 25, D. C.

Courses at the National Bureau of Standards are offered under the direction of the Bureau's Educational Committee and this College. The program includes graduate and undergraduate courses.

During the past year the educational program at the National Bureau of Standards included courses in chemistry, electrical engineering, mathematics, mechanical engineering and physics. An announcement of courses for each year is available from the Registrar at the National Bureau of Standards.

Further information concerning this program may be obtained from Mr. Joseph Hilsenrath, member of the Educational Committee, or Mrs. L. L. Chapin, Registrar, EMerson 2-4040, extension 366, The Manse, or this College.

NAVAL ORDNANCE LABORATORY

White Oak, Silver Spring, Maryland

The center at the Naval Ordnance Laboratory is set up for Navy Department personnel in the Washington area. For the most part, courses at this center are of graduate level.

In addition to its regular program, special courses are offered from time to time in support of new projects. A number of courses are arranged at the College Park campus evenings and Saturdays to amplify the NOL program.

During the past year, advanced courses were offered in aeronautical engineering, electrical engineering, mathematics, mechanical engineering, and physics. A printed brochure is available which explains the NOL program.

Additional information may be obtained from Mr. D. E. Starnes, Chief, Training Division, or Mr. Robert C. Donahue, Education and Training Specialist, HEMlock 4-7100, extension 411, NOL, or this College.

NAVAL RESEARCH LABORATORY

Anacostia

Courses under this program are designed primarily for Navy scientists doing graduate study in the fields of chemistry, engineering, mathematics, and physics and are given in cooperation with the Science Education Section of the

Naval Research Laboratory. A printed brochure is available at the Naval Research Laboratory which explains the program.

During the past year the Naval Research Laboratory program included advanced courses in electrical engineering, mathematics, mechanical engineering, metallurgy and physics.

Further information concerning this program may be obtained from Mr. John K. Baumgart, Head, Science Education Section, JOhnson 3-6600, extension 856, or this College.

PATUXENT RIVER—UNITED STATES NAVAL AIR STATION

The Patuxent program is aimed primarily at meeting the graduate needs of personnel interested in electrical, mechanical, and aeronautical engineering.

During the past year, advanced courses were offered in chemical engineering, electrical engineering, mathematics, and mechanical engineering.

Further information concerning this program may be obtained from Dr. Walter J. Hesse, Chief Engineer, Test Pilot Training Division, Patuxent River, or Dr. H. R. Reed, Professor of Electrical Engineering, College Park campus, or this College.

THE PENTAGON

The Pentagon program, sponsored by the Military District of Washington's University Center, is operated in cooperation with the Army, Air Force, Navy, and Marine Corps, and includes both military and civilian personnel in the Washington area. Well in advance of program planning, the respective services conduct polls to determine the educational needs of military personnel.

The educational offering at the Pentagon represents the world's largest off-campus university program for military personnel currently in operation. During the past year courses were offered in business administration, economics, English, foreign languages, geography, government and politics, history, journalism, mathematics, military science, philosophy, psychology, sociology, and speech. The majority of the students at the Pentagon are primarily interested in courses leading to the BA degree in General Studies and the BS degrees in Military Science. Others are working toward degrees in various colleges. An increasing number of students are pursuing graduate degrees.

Further information concerning this program may be obtained during the day from Miss Dorothy Martin and Mr. George Bowman at the Pentagon room 3C147, University Center, LIberty 5-6700, extension 78015 or 72823. Information may also be obtained from Major Harry J. Anderson, T. I & E. Officer by calling LIberty 5-6700, extension 77384. Air Force personnel may obtain information from Mrs. Lois Roberts, Education Director, Pentagon, Room 5C268, LIberty 5-6700, extension 77074, 71863, or this College.

WALTER REED ARMY MEDICAL CENTER

Washington 12, D. C.

Courses are given at the Army Medical Center in cooperation with the Troop Information and Education Office at the post. Course offerings are

planned to meet the needs of Army and Air Force personnel interested in working for Military Science degrees and nurses interested in meeting requirements for a professional degree.

Courses in English, foreign languages, government and politics, history, mathematics, military science, psychology, sociology and speech have been offered during the past year.

Further information regarding the Walter Reed program may be obtained from Capt. Charles C. Weesner, Jr., T. I. & E. Officer, or Mr. Robert E. Hynes, Education Adviser, RANDolph 3-1000, extension 3670, or this College.



Registration at the Pentagon—Over 1,000 students enroll in CSCS courses offered at this center.

COLLEGE OF SPECIAL AND CONTINUATION STUDIES OVERSEAS PROGRAM

RAY EHRENSBERGER, Ph.D., Dean

STANLEY J. DRAZEK, Ph.D., Associate Dean

RALPH J. KLEIN, Ph.D., Assistant to the Dean

GEORGE J. DILLAVOU, M.A., Assistant to the Dean

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ROBERT A. BAYS, M.S., Supervisor of Language Courses

ROSE BEYER, DR.SC., Supervisor of Mathematics Courses

JOSEPHINE LEO, B.S., Evaluator, Admissions

JOANNE LINDER, B.S., Administrative Assistant (Books and Reference Materials)

PATRICIA A. KLAMERTH, M.A., Administrative Assistant (Veterans Affairs)

GRACE N. MARKEN, B.S.C., Administrative Assistant (Logistics)

BEATRICE D. MUELLER, Administrative Assistant (Registrar's Office)

CLINTON P. SCHROEDER, Administrative Assistant (United Kingdom)

OVERSEAS PROGRAM

History

The success of the course work offered by the University of Maryland at the Pentagon since 1947 encouraged high officials in the Army and in the Air Force to propose the establishment of similar operations in Europe (with other institutions undertaking like assignments in other areas; notably, the University of California in the Pacific and Louisiana State University in the Caribbean).

Exploratory studies revealed the need and indicated the probable benefits of such a program. Classes began on October 31, 1949, at six of the Armed Forces Education Centers selected for the initiation of the program: Berlin, Frankfurt, Heidelberg, Munich, Nürnberg, and Wiesbaden. The Administrative Offices were opened in Heidelberg in April, 1950.

The fact that 1,851 students registered for the first term was interpreted as an expression of appreciation for the co-operative efforts of the Armed Forces and the University in bringing college-level instruction to where the men were located. In successive terms the program has been expanded and decentralized, so that over ten thousand students were served during the past academic year.

The Program is operated on an accelerated basis, with classes meeting two

evenings each week for eight weeks. There are five terms each year. The terms are as follows:

September—November
 November—January
 February—March
 April—May
 June—July

The Heidelberg Office has more autonomy than do the various state-side centers. It maintains an assistant comptroller, an assistant registrar, and an assistant director of admissions.

Courses Offered

The courses of study arranged for the European Program point primarily to the Bachelor of Science degree in Military Science and the Bachelor of Arts degree in General Studies. Courses are taught in business administration, economics, English, foreign languages, geography, government and politics, history, mathematics, military science, psychology, sociology, and speech.

Teaching Personnel

A faculty of 125 to 150 full and part-time teachers is maintained during each academic term. All teachers are selected at College Park in consultation with the respective department heads. Each department head appoints one of the assigned overseas instructors to act as his departmental representative on matters pertaining to departmental policy. A close liaison is maintained between the department head and his overseas representative.

Foreign languages and mathematics courses are taught by qualified nationals who have been approved by the respective department heads or their representatives.

Educational centers vary from term to term as dictated by military policy and other factors that result in the movement of military personnel. Classes are currently being offered at the following overseas centers.

OVERSEAS CENTERS

EUROPE, NORTH AFRICA AND THE NEAR EAST

France	Fontenet	Toul Engr. Depot	Bamberg
Bordeaux	Ingrandes	Toul Rosieres	Baumholder
Braconne	Laon	Troisfontaines	Bayreuth
Bussac	La Rochelle	Verdun	Berlin
Captieux	Maison Fort	Germany	Birkenfeld
Chambley	Metz	Amberg	Bitburg
Chateauroux	Nancy	Ansbach	Boeblingen
Chaumont	Orleans	Aschaffenburg	Bremerhaven
Chinon	Orly	Augsburg	Buedingen
Croix Chapeau	Paris	Babenhausen	Dachau
Dreux	Perigueux	Bad Aibling	Darmstadt
Etain	Poitiers	Bad Kissingen	Dexheim
Evreux	Rocheftort	Bad Kreuznach	Erding
Fontainebleau	Sampigny	Bad Toelz	Erlangen

Germany (Cont'd)	Germany (Cont'd)	Netherlands	Fairford
Frankfurt	Neckarsulm	Soesterberg	Greenham
Freising	Nellingen	North Africa	Common
Friedberg	Nuernberg	Asmara, Ethiopia	High Wycombe
Fuerstenfeld-	Oberammergau	Ben Guerir,	Kirknewton
bruck	Pirmasens	French Morocco	Lindholme
Fuerth	Ramstein	Nouasseur,	Manston
Fulda	Regensburg	French Morocco	Mildenhall
Garmisch	Rhein-Main	Rabat,	Molesworth
Gelnhausen	Rothwesten	French Morocco	Prestwick
Giessen	Schwabach	Sidi Slimane,	Sculthorpe
Goeppingen	Schwaebisch	French Morocco	Sealand
Grafenwoehr	Gmuend	Tripoli, Libya	Shaftesbury
Hahn	Schwaebisch Hall	Norway	Shellingford
Hammelburg	Schweinfurt	Oslo	Shepherd's Grove
Hanau	Schwetzingen	Saudi Arabia	South Ruislip
Heidelberg	Sembach	Abqaiq	Stansted-
Heilbronn	Spangdahlem	Dhahran	Mountfitchett
Herzfeld	Straubing	Rastanura	Sturgate
Herzo	Stuttgart	Turkey	Upper Heyford
Hoechst	Trier	Ankara	West Drayton
Idar Oberstein	Ulm	Izmir	Wethersfield
Kaiserslautern	Vaihingen	United Kingdom	Wimpole Park
Karlsruhe	Wackernheim	Alconbury	Woodbridge
Kaufbeuren	Wertheim	Bentwaters	North Atlantic
Kirch Goens	Wiesbaden	Bovingdon	Centers
Kornwestheim	Wildflecken	Brize Norton	Greenland
Landsberg	Worms	Burderop Park	Narsarsuak
Landshut	Wuerzburg	Buronwood	Sondrestrom
Landstuhl	Zweibruecken	Bushey Hall	Thule
Leipheim	Greece	Bushy Park	Iceland
Ludwigsburg	Athens	Chelveston	Keflavik
Mainz	Italy	Chicksands	Labrador
Mannheim	Aviano	Colliers End	Goose Bay
Munich	Leghorn	Croughton	Newfoundland
Murnau	Naples	Denham	Harmon
Neubiberg	Rome	East Kirkby	Pepperrell
Neubruecke	Udine		

Cooperation of Information and Education Branches

The European Program would not be possible except for the valuable assistance and support of the Information and Education Branches of the Armed Services. Full-time staff members are provided military transportation to and from Europe. Extensive assistance is given to the University in matters involving registration, quarters, and many other essentials of university existence in the centers of troop concentration in Europe.

American and European civilians are admitted to the University of Maryland classes, provided that no armed services personnel are excluded thereby.

Degree Opportunities

Credit earned in the European program is considered as residence credit at the University of Maryland, as is credit earned at the stateside centers. Students may pursue studies leading to degrees at the University of Maryland or transfer credits to other institutions.

The Munich Program

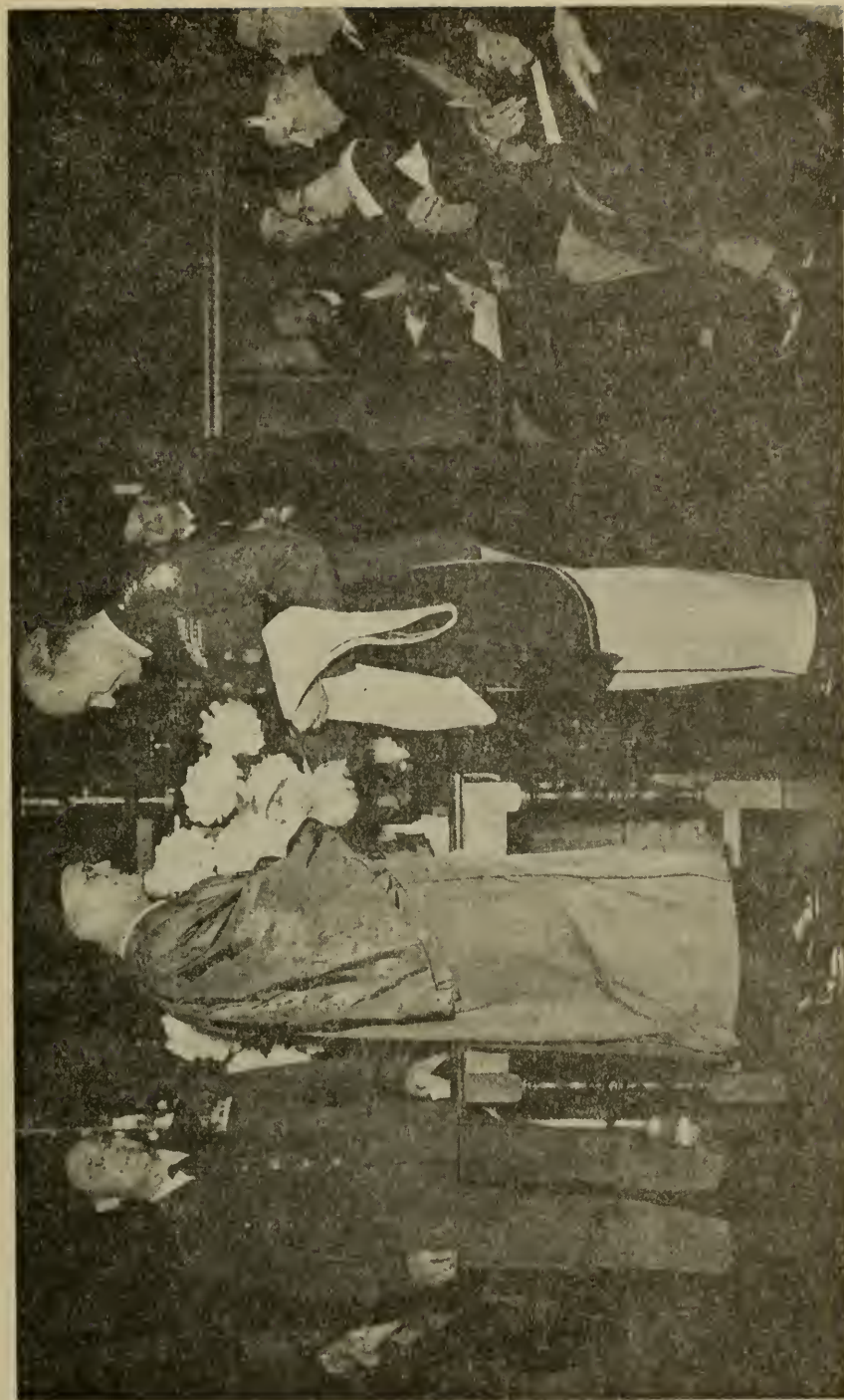
The Overseas Program makes available at Munich a program of freshman and sophomore level courses, primarily designed to meet the needs of service dependents who are qualified for college work. The courses are of American college standard and are for the most part those required in the curricula of the College of Arts and Sciences.

At Munich, logistical support, including dormitory facilities, is made available to authorized dependents. Other students may register but they must make their own housing arrangements. Tuition, dormitory fees, books and materials involve a total cost of approximately \$400 per year.

Overseas Catalog

An independent catalog for the European Program is published by the Heidelberg office. A copy of this catalog may be obtained from the College of Special and Continuation Studies at College Park or by addressing a request to: University of Maryland, HAC c/o T. I. & E. section, APO 403 c/o Postmaster, New York, New York.





DOCTORATE FOR TOP ALLIED COMMANDER IN EUROPE—Gen. Alfred M. Gruenther, Supreme Commander Allied Forces in Europe, clasps hands with Dr. Wilson H. Elkins, President of the University of Maryland, after receiving the hood symbolic of his honorary degree of Doctor of Military Science. Looking on are (from left) Dr. Reinhard Herbig, Rector of the University of Heidelberg; Col. Joseph R. Ambrose, Dean of Maryland's College of Military Science; Dr. Ray Ehrensherger, Dean of the College of Special and Confirmation Studies, and Governor Theodore R. McKeldin of Maryland, among others.

NORTH ATLANTIC PROGRAM**Newfoundland**

At the request of the North East Air Command, the College of Special and Continuation Studies inaugurated a Newfoundland program on July 1, 1951. This program is operated on an accelerated basis, with classes meeting two evenings each week for eight week terms.

Classes in accounting, economics, English, foreign languages, geography, government and politics, history, mathematics, sociology, and speech were offered during 1954-1955. Courses are offered at the following Newfoundland Centers:

Harmon Air Force Base—Stephenville

Pepperrell Air Force Base—St. John's

Labrador

Goose Bay

Greenland

At the request of the North East Air Command, the College of Special and Continuation Studies inaugurated the Greenland program in February, 1953.

Classes in English, French, history and speech were offered during the 1954 Spring terms at the following Greenland bases:

Narsarssuak (BW-1)

Sondrestrom (BW-8)

Thule

Further information regarding the Newfoundland, Labrador and Greenland centers may be obtained from Lt. Colonel George L. Jesse, Director, Personnel Services Division, Headquarters, North East Air Command, Pepperrell Air Force Base, St. John's, Newfoundland, or the College of Special and Continuation Studies, University of Maryland, College Park, Maryland.

Iceland

At the request of the Military Air Transport Service a center was established at Keflavik, Iceland, in December 1951. Courses have been offered in economics, English, foreign languages, history, government and politics, sociology, and speech.

Further information relative to Iceland offerings may be obtained from the Education Officer, Keflavik Air Force Base, Keflavik, Iceland, or Major David Lewis, Headquarters, Military Air Transport Service, Andrews Air Force Base, Washington, D. C., or this College.

Administration

The Newfoundland, Greenland and Iceland offerings are administered as the North Atlantic Program from the College of Special and Continuation Studies at College Park.

This program would not be possible without the valuable assistance and support of the Educational Personnel at the respective centers.

SECTION V

COURSE DESCRIPTIONS

Below are listed by departments or special units, the courses offered in the academic year 1955-1956 through the College of Special and Continuation Studies.

The number of hours of credit is shown by the arabic numeral in parentheses after the title of the course.

Courses are designated by numbers as follows:

1 to 99: Courses for undergraduates.

100 to 199: Courses for advanced undergraduates and graduates. (Not all courses numbered 100 to 199 may be taken for graduate credit.)

200 to 299: Courses for graduates only.

A student pursuing a graduate program should keep constantly in touch with the graduate adviser of his major department.

AERONAUTICAL ENGINEERING*

Aero. E. 101. Aerodynamics (3).

Basic fluid mechanics and the aerodynamic theory of air foils. Airplane performance and stability calculation. Laboratory demonstration.

For Graduates

Aero. E. 200. Advanced Aerodynamics (3) Three lectures a week. Prerequisites, Aero. E. 115, Math. 64.

Review of thermodynamics and physical properties of gases. One dimensional flow of a perfect compressible fluid. Shock waves. Fundamental equations of aerodynamics of compressible fluid. Two-dimensional linearized theory of compressible flow, Prandtl-Glauert method, Ackeret method. Rayleigh-Janzen method. Hodograph method, Karman-Tsien approximation. Two-dimensional transonic and hypersonic flows. Exact solutions of two dimensional isentropic flow.

Aero. E. 201. Advanced Aerodynamics (3) Three lectures a week. Prerequisite, Aero E. 200.

Linearized theory of three-dimensional potential flow. Exact solution of axially symmetrical potential flow. Method of characteristics. (Two-dimensional and axially symmetrical flow), nozzle design; flow in jets; rotational flow of compressible fluid. One-dimensional viscous compressible flow. Laminar boundary layer of compressible fluids.

Aero. E. 202. Advanced Aircraft Structures (3)—Three lectures a week. Prerequisites, Math. 64 and Aero. E. 113, 114.

Introduction to two dimensional theory of elasticity, energy methods, plate theory, theory of elastic instability.

Aero. E. 203. Advanced Aircraft Structures (3)—Three lectures a week. Prerequisite, Aero. E. 202.

*Several Aeronautical Engineering courses described below are offered on the campus at times convenient to off-campus students.

Aerodynamic heating of structures, thermal stresses, creep, creep bending and buckling, visco-elastic theory.

Aero. E. 204. Aircraft Dynamics (3) Prerequisites, Math. 64 and Aero. E. 114.

Dynamics of a rigid body and applications to airplane dynamics. Generalized coordinates and Lagrange's equations. Vibrations of simple systems. Dynamics of elastically connected masses. Influence coefficients. Mode shapes and principal oscillations. Transient stresses in an elastic structure.

Aero. E. 205. Aircraft Dynamics (3) Prerequisites, Math. 64 and Aero. E. 101.

Wing divergence and aileron reversal. Theory of two dimensional oscillating airfoil. Flutter problems. Corrections for finite span. Compressibility effects.

Aero. E. 206, 207. Advanced Aircraft Power Plants (3, 3)—Two lectures and one laboratory period a week. Prerequisites, M. E. 100, Aero. E. 109, 110.

Special problems of thermodynamics and dynamics of aircraft power plants; jet and rocket engines. Research in power plant laboratory.

Aero. E. 208. Advanced Aircraft Design (3)—Three lectures a week. Prerequisites, Aero. E. 101, 102, 113, 114.

Theory and method of airplane design. Each student designs either a jet transport upon assigned specifications or any other airplane that he desires. Special emphasis is placed on the derivations and theoretical background of the formulas and experimental data used.

Aero. E. 209. Stability and Control (3)—Three lectures a week. Prerequisites, Aero. E. 101, 102.

Static and dynamic stability and control.

Aero. E. 210. Aerodynamic Theory (3)—Prerequisites, Aero. E. 101, Math. 64.

Fundamental equations in fluid mechanics. Irrotational motion. Conformal transformation. Joukowski airfoils. Thin airfoil theory. Lifting line theory. Wind tunnel corrections. Propellor theories. Linearized equations in compressible flow. Special topics.

Aero. E. 211. The Design and Use of Wind Tunnels (Supersonic) (3).

The design and use of wind tunnels (supersonic). Review of basic aerodynamics and thermodynamics. Problems in supersonic tunnel design such as pumping, power supply, condensation and driers. Equipment for measuring results such as balances, manometer, optical instruments, such as schlieren, spark illumination and X-ray equipment. Investigations in supersonic wind tunnels are described with special reference to similitude required for conversion to full scale.

Aero. E. 212, 213. Bodies at Supersonic Speeds (3, 3)—First and second semesters. Prerequisites, degree in Aero. E. or M. E. or equivalent, and consent of instructor.

Brief review of gasdynamics, drag, lift, stability, and damping on a body in a supersonic stream. Special aerodynamic problems in the design of supersonic missiles. Methods for obtaining accurate test data on the aerodynamic characteristics of supersonic missiles.

Aero. E. 214—Seminar. (In accordance with work outlined by the Aero. E. Staff.) Prerequisite, graduate standing.

Aero. E. 215—Research. (Credit in accordance with work outlined by Aero. Engr. staff.) Prerequisite, graduate standing.

Aero. E. 216. Selected Aeroballistics Problems (3)—Prerequisites, degree in Aero. E. or M. E. or equivalent and consent of instructor.

Physical processes and aerothermodynamic laws connected with the flow around supersonic missiles. Boundary layer problems and the transfer of heat and mass.

Aero. E. 217. Aerodynamics of Viscous Fluids (3)—Prerequisites, Aero. E. 101, Math. 64.

Fundamental concept Navier-Stokes' equations. Simple exact solutions. Laminar boundary layer theory. Pohlhausen method. Turbulent boundary layer; mixing length and similarity theories. Boundary layer in compressible flow.

Aero. E. 218. Selected Topics in Aerodynamics (3)—Prerequisites, Aero. E. 210, 115.

Topics of current interest and recent advances in the field of aerodynamics.

BACTERIOLOGY

Bact. 1. General Bacteriology (4). Two lectures and two laboratory periods a week.

The physiology, culture and differentiation of bacteria. Fundamental principles of microbiology in relation to man and his environment. Laboratory fee, \$10.00.

Bact. 101. Pathogenic Bacteriology (4). Two lectures and two laboratory periods a week.

The role of microorganisms in the diseases of man and animals with emphasis upon the differentiation and culture of bacterial species, types of diseases, modes of disease transmission; prophylactic, therapeutic and epidemiological aspects. Laboratory fee, \$10.00.

Bact. 108. Epidemiology and Public Health (2). Two lecture periods a week. Prerequisite, Bact. 1.

History, characteristic features, and epidemiology of the important communicable diseases; public health aspects of man's struggle for existence; public health administration and responsibilities; vital statistics.

Bact. 202. Genetics of Microorganisms (2). Two lecture periods a week. Prerequisite, consent of instructor.

An introduction to genetic principles and methodology applicable to microorganisms.

Bact. 204. Bacterial Metabolism (2)—Two lecture periods a week. Prerequisite, 30 credits in bacteriology and allied fields, including Chem. 161 and 162.

Bacterial enzymes, nutrition of autotrophic and heterotrophic bacteria, bacterial growth factors, dissimilation of carbohydrates and nitrogenous substrates.

Bact. 206, 208. Special Topics (1, 1)—Prerequisite, 20 credits in bacteriology.

Presentation and discussion of fundamental problems and special subjects in the field of bacteriology.

Bact. 210. Virology (1)—One lecture period a week. Prerequisite, Bact. 101 or equivalent.

Characteristics and general properties of viruses and rickettsiae.

Bact. 211. Virology Laboratory (2)—One lecture and one laboratory period a week. Prerequisite, Bact. 101 or equivalent. Registration only upon consent of instructor.

Laboratory methods in virology. Laboratory fee, \$20.00.

BOTANY

Bot. 1. General Botany (4). Two lectures and two laboratory periods a week. First and second semester; summer.

General introduction to botany, touching briefly on all phases of the subject. Emphasis is on the fundamental biological principles of the higher plants. Laboratory fee, \$5.00.

BUSINESS ADMINISTRATION

B. A. 10, 11. Organization and Control (2, 2). Required in all Business Administration curriculums.

A survey course treating the internal and functional organization of a business enterprise. B. A. 11 includes industrial management, organization and control.

B. A. 20, 21. Principles of Accounting (4, 4). Required in all Business Administration curriculums. Prerequisite, Sophomore training.

The fundamental principles and problems involved in accounting for proprietorships, corporation and partnerships.

B. A. 130. Elements of Business Statistics (3). Prerequisite, Junior standing. Required for graduation. Laboratory fee \$3.50.

This course is devoted to a study of the fundamentals of statistics. Emphasis is placed upon the collection of data; hand and machine tabulation; graphic charting; statistical distribution; averages; index numbers; sampling; elementary tests of reliability; and simple correlations.

B. A. 140. Financial Management (3). Prerequisite, Econ. 140.

This course deals with the principles and practices involved in the organization, financing, and reconstruction of corporations; the various types of securities and their use in raising funds; apportioning income, risk, and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

B. A. 160. Personnel Management (3). Prerequisite, Econ. 160.

This course deals essentially with functional and administrative relationships between management and the labor force. It comprises a survey of the scientific selection of employees, "in-service" training, job analysis, classification and rating, motivation of employees, employee adjustments, wage incentives, employee discipline and techniques of supervision, and elimination of employment hazards.

B. A. 163. Industrial Relations (3). Prerequisite, Econ. 160.

A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation, and conciliation; collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation, and injunctions.

B.A. 164. Recent Labor Legislation and Court Decisions (3). Prerequisite B. A. 160 and senior standing.

B. A. 165. Office Management (3). Prerequisite, B. A. 11 or junior standing.

Considers the application of principles of scientific management in their application to office work.

B. A. 166. Business Communications (3). Prerequisite, junior standing.

A systematic study of the principles of effective written communications in business. The fundamental aim is to develop the ability to write clear, correct, concise, and persuasive business letters and reports.

B. A. 167. Job Evaluation and Merit Rating (2). Prerequisite, B. A. 160.

The investigation of the leading job evaluation plans used in industry, study of the development and administrative procedures, analyzing jobs and writing job descriptions, setting up a job evaluation plan, and relating job evaluation to pay scales. Study of various employee merit rating programs, the methods of merit rating, and the uses of merit rating.

B. A. 169. Industrial Management (3). Prerequisites, B. A. 11 and 160.

Studies the operation of a manufacturing enterprise. Among the topics covered are product development, plant location, plant layout, production planning and control, methods analysis, time study, job analysis, budgetary control, standard costs, and problems of supervision. An inspection trip to a large manufacturing plant is made at the latter part of the semester.

B. A. 170. Transportation Services and Regulation (3). Prerequisite, Econ. 32 or 37.

A general course covering the five fields of transportation, their development, services and regulation. (This course is a prerequisite for all other transportation courses.)

B. A. 177. Motion Economy and Time Study (3). Prerequisite, B. A. 169.

A study of the principles of motion economy, simo charts, micromotion study, the fundamentals of time study, job evaluation, observations, standard times, allowances, formula construction, and wage payment plans.

B. A. 178. Production Planning and Control (2)—Prerequisite B. A. 169.

Analysis of the man-, and material-, and machine requirements for production according to the several types of manufacture. The development and application of inventory records, load charts, production orders, schedules, production reports, progress reports and control reports. One lecture period and one laboratory period each week.

B. A. 179. Problems in Supervision (3). Prerequisite, B. A. 169.

A case study course of supervisory problems divided into difficulties with subordinates, with associates, and with superiors. The purposes of the course are to apply general principles of industrial management to concrete cases and to extract principles from a study of cases.

B. A. 180, 181. Business Law (4, 4). Prerequisite, senior standing. Required in all Business Administration curriculums.

Legal aspects of business relationships, contracts, negotiable instruments, agency, partnerships, corporations, real and personal property, and sales.

B. A. 269. Studies of Special Problems in Employer-Employee Relationships. (Arranged).

CHEMISTRY

Chem. 1, 3. General Chemistry (4, 4). Laboratory fee, \$10.00.

Chem. 19. Elements of Quantitative Analysis (4). Prerequisite, Chem. 15. Laboratory fee, \$10.00.

Chem. 101. Advanced Inorganic Chemistry (2). Prerequisites, Chem. 37, 38, 123.

Chem. 141, 143. Advanced Organic Chemistry (2, 2). Prerequisites, Chem. 37, 38.

An advanced study of the compounds of carbon.

Chem. 144. Advanced Organic Laboratory (2). Prerequisites, Chem. 19 or 23, and Chem. 37, 38. Laboratory fee, \$10.00.

Chem. 146, 148. The Identification of Organic Compounds (2, 2). Prerequisites, Chem. 141-143, or concurrent registration therein. Laboratory fee, \$10.00.

The systematic identification of organic compounds.

Chem. 161, 163. Biochemistry (2, 2)—Two lectures per week. Prerequisites, Chem. 31, 33, or Chem. 35, 37.

This course is designed primarily for students in agriculture, bacteriology, or chemistry, and for those students in home economics who need a more extensive course of biochemistry than is offered in Chem. 81, 82.

Chem. 162, 164. Biochemistry Laboratory (2, 2). Prerequisites, Chem. 32, 34, or Chem. 36, 38. Laboratory fee, \$10.00.

Chem. 187, 189. Physical Chemistry (3, 3). Prerequisites, Chem. 19 or 21; Phys. 20, 21; Math. 20, 21, or consent of instructor.

A course primarily for chemists and chemical engineers.

Chem. 201, 203. The Chemistry of the Rarer Elements (2, 2).

Chem. 205. Radiochemistry (2).

Chem. 261, 263. Advanced Biochemistry (2, 2). Prerequisites, Chem. 141, 143, or consent of the instructor.

Chem. 262, 264. Advanced Biochemistry Laboratory (2, 2). Prerequisite, consent of the instructor. Laboratory fee, \$10.00.

Chem. 285. Colloid Chemistry (2).

Chem. 287. Infra-red and Raman Spectroscopy (2). Two lectures a week. Prerequisites, Chem. 141, 143, 187, 189 and permission of instructor.

Chem. 289. Selected Topics in Advanced Colloid Chemistry (2)—Prerequisite, Chemistry 285.

Chem. 299. Reaction Kinetics (3).

Chem. 303. Electrochemistry (3).

CHEMICAL ENGINEERING

Ch. E. 140. Introduction to Nuclear Technology (2). Two lectures a week. Prerequisite, consent of instructor.

Engineering description of the different parts of the atomic energy complex, including mining and refining of ores, isotopic and chemical separations and nuclear reactor operation. The novel chemical engineering techniques employed are discussed. The emphasis is on the nuclear reactor. This is an orientation course for those only generally interested in applied atomic energy.

Ch. E. 142. Environmental Considerations of Nuclear Engineering (3). Three lectures a week. Prerequisite, permission of instructor.

Engineering analysis of protection of the public and the environment from the hazards of nuclear energy operations. Emphasis is on the handling and disposal of gaseous, liquid and solid radioactive wastes. Meteorological, hydrological and geological phases are included. Typical problems encountered from mining of ores through nuclear reactor operations and chemical separations are considered. Legislative and economic factors, site selection, plant design and operations as related to the environment are discussed.

Ch. E. 214. Corrosion and Metal Protection (4). Four lecture hours a week. Prerequisites, Ch. E. 114 or Chem. 189 or Chem. 190 or consent of the instructor.

The subjects to be covered include: theories of corrosion of ferrous and non-ferrous metals, passive films, corrosion inhibitors, metal cleaning, stress corrosion, corrosive chemicals, electrolytic protection, restoration of ancient bronzes, organic coatings, metal coloring, parkerizing, hot dip coatings, plated coatings and selection of engineering materials. Class demonstrations will illustrate the subject matter. Due to the diversity of subjects and scattered sources, considerable outside reading will be necessary.

Ch. E. 240, 241. Advanced Heat and Mass Transfer (2, 2). Elective of graduate students in Chemical Engineering and others. Prerequisite, consent of the Department.

The technical and scientific elements of the mathematical theory of heat and mass transfer.

Ch. E. 280, 281. Graduate Chemical Engineering Thermodynamics (3, 3). Prerequisites, Ch. E. 109, f, s; Ch. E 110; or permission of instructor.

Advanced studies of the applications of the principles of engineering and chemical thermodynamics to some industrial problems encountered in the practice of chemical engineering.

Ch. E. 302, 303. Nuclear Reactor Engineering (3, 3). Three lectures a week. Prerequisite, permission of instructor.

Introduction to the engineering problems of the design, construction and operation of typical nuclear reactors, including general design, nuclear reactor theory, materials of construction, heat transfer, control, etc. Emphasis is toward commercial nuclear reactors.

Ch. E. 311. Nuclear Separation Engineering (2). Two lectures a week. Prerequisite, permission of instructor.

Application of chemical engineering to the chemical and isotopic separations necessary for nuclear reactor operation. These separations include (1) processing of uranium, thorium and other ores, (2) chemical separation of plutonium, uranium, fission products and other elements from materials irradiated in nuclear reactors, (3) treatment and disposal of radioactive wastes, (4) isotopic separation of U235 and heavy water.

Ch. E. 315. Industrial Applications of Nuclear Reactors (2). Two lectures a week. Prerequisite, permission of instructor.

An engineering survey of the current applications and those under development. Included are such uses of radiation as producing valuable radio-active and stable isotopes, synthesizing chemicals, and preserving foods. The changes in the design and operation of power-only nuclear reactor complexes required for such additional applications are discussed.

METALLURGICAL OPTION

Met. 164, 166. Thermodynamics of Metallurgical Processes (3, 3). Three lectures a week. Prerequisites, Chem. 187, 189; Chem. 188, 190.

The application of the principles of thermodynamics to metallurgical systems with emphasis on steel making; laws of chemical reactions; materials and reactions in steel making processes; applications of theory to steel making; applications of theory to selected non-ferrous systems.

Met. 188, 189. Alloy Steels I, II (2, 2). Two lectures per week. Prerequisites, graduate or undergraduate standing. (Met. 188 is not prerequisite to Met. 189).

Recent advances in the physical metallurgy of steel; ferrite, cementite, and austenite; the isothermal transformation of austenite; decomposition of austenite by continuous cooling; the effects of various metallurgical treatments on the mechanical properties of steels. The properties of quenched and tempered steels; importance of hardenability in engineering applications; calculation of hardenability; variables affecting hardenability; intensifiers; effects of alloying elements on the mechanical properties of steels; efficient use of alloying elements in steel.

(Note: To be offered at off-campus naval installations as determined by departmental and registration requirements.)

Met. 228. Seminar in Metallurgy (1). One meeting a week. Required of graduate students in metallurgical curriculum.

Survey of the Metals literature, and oral presentation of prepared reports.

The content of this course is constantly changing, so a student may receive a number of credits by re-registration.

Met. 229. Gases in Metals (2). Two lectures per week. Prerequisites, Met. 182, 183, or permission of the instructor.

A consideration of the behavior of gases in metals with emphasis on the action of hydrogen in solid metals.

Met. 230, 231. Mechanical Metallurgy (3, 3). Three lectures a week. Prerequisites, Math. 114, 115; Met. 182, 183.

Theory of plastic flow and rupture of polycrystalline metals; the influence of combined stresses, rate of deformation and temperature variation on the flow and rupture of metals. Flow and fracture in single crystals; theoretical crystal plasticity, theory of failure, recovery, recrystallization, and texture formation.

Met. 232, 233. Advanced Physical Metallurgy (3, 3). Three lectures a week. Required of graduate students in metallurgical curriculum.

The principles of X-ray metallography; the atomic theory of metals; magnetic materials; phase equilibria; review of important binary and ternary systems; diffusion and transformations in the solid state. (Offered at the Navy Department.)

ECONOMICS

Econ. 31, 32. Principles of Economics (3, 3). Prerequisite, sophomore standing. Required in the Business Administration Curriculums.

A general analysis of the functioning of the economic system. A considerable portion of the course is devoted to a study of basic concepts and explanatory principles. The remainder deals with the major problems of the economic system.

Econ. 131. Comparative Economic Systems (3). Prerequisite, Econ. 32 or 37.

An investigation of the theory and practice of various types of economic systems. The course begins with an examination and evaluation of the capitalistic system, and is followed by an analysis of alternative types of economic systems such as fascism, socialism, and communism.

Econ. 132. Advanced Economic Principles (3). Prerequisite, Econ. 32. Required for Economics majors.

This course is an analysis of price and distribution theory with special attention to recent developments in the theory of imperfect competition.

Econ. 134. Contemporary Economic Thought (3). Prerequisite, Econ. 32.

A survey of recent trends in American, English, and Continental economic thought with special attention being given to the work of such economists as W. C. Mitchell, J. R. Commons, T. Veblen, W. Sombart, J. A. Hobson, and other contributors to the development of economic thought since 1900.

Econ. 136. International Economic Policies and Relations (3). Prerequisite, Econ. 32 or 37.

A descriptive and theoretical analysis of international trade. Full consideration is given to contemporary problems facing international trade and to the impact of governmental policy upon international commercial relations.

Econ. 137. The Economics of National Planning (3). Prerequisite, Econ. 32 or 37.

An analysis of the principles and practice of economic planning with special reference to the planning problems of Great Britain, Russia and the United States.

Econ. 140. Money and Banking (3). Prerequisite, Econ. 32 or 37.

A study of the organization, functions, and operation of our monetary, credit, and banking system; the relation of commercial banking to the Federal Reserve System; the relation of money and credit to prices; domestic and foreign exchange; and the impact of public policy upon banking and credit.

Econ. 142. Public Finance and Taxation (3). Prerequisite, Econ. 32 or 37.

A study of governmental fiscal policy with special emphasis upon sources of public revenue, the tax system, government budgets, and the public debt.

Econ. 150. Marketing Principles and Organization (3). Prerequisite, Econ. 32 or 37.

This is an introductory course in the field of marketing. Its purpose is to give a general understanding and appreciation of the forces operating, institutions employed, and methods followed in marketing agricultural products, natural products, services, and manufactured goods.

Econ. 160. Labor Economics (3). Prerequisite, Econ. 32 or 37.

The historical development and chief characteristics of the American labor move-

ment are first surveyed. Present-day problems are then examined in detail; wage theories, unemployment, social security, labor organization, collective bargaining.

Econ. 171. Economics of American Industries (3). Prerequisite, Econ. 32 or 37.

A study of the technology, economics and geography of twenty representative American industries.

EDUCATION

See College of Education catalog for a full listing of courses.

Ed. 90. Development and Learning (3).

A study of the principles of learning and their application to school situations. Designed to meet the usual teacher-certification requirement for educational psychology.

Ed. 102. History of Education in the United States (2).

A study of the origins and development of the chief features of the present system of education in the United States.

Ed. 105. Comparative Education—European (2).

A study of national systems of education with the primary purpose of discovering their characteristic differences and formulating criteria for judging their worth.

Ed. 106. Comparative Education—Latin American (2).

This course is a continuation of Ed. 105, with emphasis upon the national educational systems of the Western Hemisphere.

Ed. 107. Philosophy of Education (2).

A study of the great educational philosophers and their contributions to modern education. Earlier periods.

Ed. 121. The Language Arts in the Elementary School (2).

Teaching of spelling, handwriting, oral and written expression, and creative expression. Special emphasis given skills having real significance to the pupils.

Ed. 122. The Social Studies in the Elementary School (2).

Consideration given to curriculum, organization and methods of teaching, evaluation of newer materials in the field.

Ed. 123. The Child and the Curriculum (2).

Relationship of the elementary school curriculum to child growth and development. Recent trends in curriculum organization; the effect of environment on learning; readiness to learn; and adapting curriculum content and methods to maturity levels of children.

Ed. 124. Arithmetic in the Elementary School (2)

Emphasis on materials and procedures which help pupils sense arithmetical meanings and relationships. Helps teachers gain a better understanding of the number system and arithmetical processes.

Ed. 126. The Elementary School Curriculum (2).

Developments in elementary education with particular attention to methods and materials which may be used to improve the development of pupils in elementary schools.

Ed. 127. Teaching in Elementary Schools (2-6).

An overview of elementary school teaching designed for individuals without specific

preparation for elementary school teaching or for individuals without recent teaching experience.

***Ed. 130. Theory of the Junior High School (2).**

A general overview of the junior high school. Purposes, functions, and characteristics of this school unit; a study of its population, organization, program of studies, methods, staff, and other similar topics, together with their implications for prospective teachers.

***Ed. 131. Theory of the Senior High School (2).**

The secondary school population; the school as an instrument of society; relation of the secondary school to other schools; aims of secondary education; curriculum and methods; activities; guidance and placement; teacher certification and employment in Maryland and the District of Columbia.

Ed. 134. Materials and Procedure for the High School Core Curriculum (2)

This course is designed to bring practical suggestions to teachers who are in charge of core classes in junior and senior high schools. Materials and teaching procedures for specific units of work are stressed. Fee, \$1.00.

Ed. 141. High School Course of Study-English (2).

Methods and techniques used in teaching the language arts in secondary schools.

Ed. 142. High School Course of Study-Literature (2).

Representative selections of the literature studied in secondary schools and methods of presentation.

Ed. 145. Principles of High School Teaching (2-3).

This course is concerned with the principles and methods of teaching in junior and senior high schools.

Ed. 147. Audio-Visual Education (2).

Sensory impressions in their relation to learning; projection apparatus, its cost and operation; slides, film-strips, and films; physical principles underlying projection; auditory aids to instruction; field trips; pictures, models, and graphic materials; integration of sensory aids with organized instruction. Fee, \$1.00.

Ed. 150. Educational Measurement (2).

Constructing and interpreting measures of achievement.

Ed. 152. The Adolescent: Characteristics and Problems (2).

This course deals with the intellectual, emotional, social, and vocational problems which arise in the transitional period between childhood and adulthood, the secondary school period.

Ed. 153. The Teaching of Reading (2)

Concerned with the fundamentals of developmental reading instruction, including reading readiness, use of experience records, procedures in using basal readers, the improvement of comprehension, teaching reading in all areas of the curriculum, uses of children's literature, the program in word analysis, and procedures for determining individual needs.

Ed. 154. Remedial Reading Instruction (2).

For supervisors and teachers who wish to help retarded readers. Concerned with causes of reading difficulties, the identification and diagnosis of retarded pupils, instructional materials, and teaching procedures. Prerequisite, Ed. 153 or the equivalent.

*Credit is accepted for Ed. 130 or Ed. 131, but not for both courses.

Ed. 161. Principles of Guidance (2).

Overview of principles and practices of guidance-oriented education.

Ed. 162. Mental Hygiene in the Classroom (2).

The practical application of the principles of mental hygiene to classroom problems.

Ed. 163, 164, 165. Community Study Laboratory I, II and III (2, 2, 2).

Involves experience from the educational standpoint with the agencies, institutions, cultural patterns, living conditions, and social processes which play significant roles in shaping the behavior of children and adults and which must be understood by individuals working toward school and community improvement. Each participant becomes a member of a group in a given area of study and concentrates on problems which have direct application in his school situation. Readings are integrated with techniques of study.

Ed. 170. Introduction to Special Education (2).

Designed to give an understanding of the needs of all types of exceptional children, stressing preventive and remedial measures.

Ed. 171. Education of Retarded and Slow-Learning Children (2).

A study of retarded and slow-learning children, including discovery, analysis of causes, testing techniques, case studies, and remedial educational measures.

Ed. 189. Workshops, Clinics, Institutes, and Field-Laboratory Projects (1-6).

The following types of educational enterprises may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors; work in schools or for schools by way of teaching apprenticeships, educational guidance services, school surveys, and curriculum development programs. The maximum number of credits that may be earned under this course symbol toward any degree is six semester hours; the symbol may be used two or more times until six semester hours have been reached.

Ed. 191. Principles of Adult Education (2).

A study of aspects of adult education in the United States, selected in terms of interests of students.

FOR GRADUATES**Ed. 203. Problems in Higher Education (2).**

A study of present problems in higher education.

Ed. 207. Seminar in History and Philosophy of Education (2).**Ed. 210. The Organization and Administration of Public Education (2).**

The basic course is school administration. Deals with the organization and administration of school systems—at the local, state, and federal levels; and with the administrative relationships involved.

Ed. 211. The Organization, Administration, and Supervision of Secondary Schools (2).

The work of the secondary school principal. The course includes topics such as personnel problems, supervision, school-community relationships, student activities, schedule making, and internal financial accounting.

Ed. 212. School Finance and Business Administration (2).

An introduction to principles and practices in the administration of the public school finance activity. Sources of tax revenue, the budget, and the function of finance in the educational program are considered.

Ed. 214. School Buildings and Equipment (2).

An orientation course in which the planning of school buildings is developed as educational designing with reference to problems of site, building facilities, and equipment.

Ed. 216. High School Supervision (2). Prerequisite, teaching experience.

Deals with recent trends in supervision; the nature and function of supervision; planning supervisory programs; evaluation and rating; participation of teachers and other groups in policy development; school workshops; and other means for the improvement of instruction.

Ed. 217. Administration and Supervision in Elementary Schools (2).

Problems in organizing and administering elementary schools and improving instruction.

Ed. 219. Seminar in School Administration (2).

Ed. 225. School Public Relations (2).

A study of the interrelationships between the community and the school. Public opinion, propaganda, and the ways in which various specified agents and agencies within the school have a part in the school public relations program are explored.

Ed. 227. Public School Personnel Administration (2).

A comparison of practices with principles governing the satisfaction of school personnel needs, including a study of tenure, salary schedules, supervision, rewards, and other benefits.

Ed. 229. Seminar in Elementary Education (2).

Primarily for individuals who wish to write seminar papers. Enrollment should be preceded by at least 12 hours of graduate work in Education.

Ed. 230. Elementary School Supervision (2).

Concerned with the nature and function of supervision, various supervisory techniques and procedures, human relationship factors, and personal qualities essential for effective supervision.

Ed. 234. The School Curriculum (2).

A foundations course embracing the curriculum as a whole from early childhood through adolescence, including a review of historical developments, an analysis of conditions affecting curriculum change, an examination of issues in curriculum making, and a consideration of current trends in curriculum design.

Ed. 235. Curriculum Development in Elementary Schools (2).

Concerned with problems encountered in curriculum evaluation and revision: sociological and philosophical factors, principles for the selection and organization of content and learning activities, patterns of curriculum organization, and construction and use of courses of study, the utilization of personnel for curriculum development.

Ed. 236. Curriculum Development in the Secondary School (2).

Curriculum planning; philosophical bases, objectives, learning experiences, organization of appropriate content, and means of evaluation.

Ed. 237. Curriculum Theory and Research (2).

The school curriculum considered within the totality of factors affecting pupil behavior patterns, an analysis of research contributing to the development of curriculum theory, a study of curriculum theory as basic to improved curriculum design, the function of theory in guiding research, and the construction of theory through the utilization of concepts from the behavioral research disciplines.

Ed. 243. Problems of Teaching Arithmetic in Elementary Schools (2).

Implications of current theory and results of research for the teaching of arithmetic in elementary schools.

Ed. 245. Applications of Theory and Research to High School Teaching (2).

Implications of experimental practices, the proposals of eminent writers, and the results of research for the improvement of teaching on the secondary level.

Ed. 248. Seminar in Industrial Arts and Vocational Education (2).**Ed. 250. Analysis of the Individual (2).**

Knowing students through use of numerous techniques. Ed. 161 desirable as prerequisite.

Ed. 253. Guidance Information (2).

Finding, filing, and using information needed by students for making choices, plans, and adaptations in school, occupations, and in interpersonal relations. Ed. 161 is desirable as prerequisite.

Ed. 254. Organization and Administration of Guidance Programs (2).

Instilling the guidance point of view and implementing guidance practices. All guidance courses except Seminar are prerequisites.

Ed. 260. Principles of School Counseling (2).

Exploration of counseling theories and the practices which stem from them.

Ed. 261. Case Studies in School Counseling (2). Prerequisite, Ed. 260.

Applications of counseling theory to the study of counseling cases which students will conduct. Designed to develop counseling proficiency.

Ed. 263, 264. Aptitudes and Aptitude Testing (2, 2). (Offered in Baltimore.)**Ed. 267. Curriculum Construction Through Community Analysis (2). Prerequisites, Ed. 163, 164, 165.**

Selected research problems in the field of community study with emphasis on the Baltimore area.

Ed. 269. Seminar in Guidance (2).**Ed. 280. Research Methods and Materials in Education (2).****Ed. 288. Special Problems in Education (1-6).**

Master of education or doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for credit under this number.

Ed. 289. Research—Thesis (1-6).

Students who desire credit for a master's thesis, a doctoral dissertation, or a doctoral project should use this number.

ELECTRICAL ENGINEERING

E. E. 100. Alternating-Current Circuits (4). Prerequisites, Phys. 21; Math. 21; E. E. 1. Required of juniors in electrical engineering. Laboratory fee, \$4.00.

Single- and polyphase-circuit analysis under sinusoidal and non-sinusoidal conditions of operation. Mesh-current and nodal methods of analysis. Harmonic analysis by the Fourier series method. Theory and design of tuned coupled circuits.

E. E. 101. Engineering Electronics (5). Prerequisites, E. E. 100. Required of juniors in electrical engineering. Laboratory fee, \$4.00.

Theory and applications of electron tubes and associated circuits with emphasis on equivalent circuit analysis of audio amplifiers, reactance tubes, feedback amplifiers, oscillators, and detectors.

E. E. 102. Alternating Current Machinery (4). Prerequisites, E. E. 65 and E. E. 100. Required of seniors in electrical engineering. Laboratory fee \$4.00.

The operating principles of alternating-current machinery considered from theoretical, design, and laboratory points of view. Synchronous generators and motors; single and polyphase transformers; three-phase induction generators and motors, single-phase induction motors; rotary converters and mercury-arc rectifiers.

E. E. 104. Communication Circuits (4). Prerequisites, E. E. 60 and E. E. 100. Required of juniors in electrical engineering.

Long-line theory applied to audio-frequency and ultra-high-frequency systems. Elements of filter theory; impedance matching; Maxwell's equations in rectangular and cylindrical coordinates and in scalar notation; elements of rectangular wave guide theory.

E. E. 105, 106. Radio Engineering (4, 4). Prerequisite, E. E. 101. E. E. 105 is required of seniors in electrical engineering. Laboratory fee \$4.00.

Characteristics of radio-frequency circuits including the design of tuned coupled circuits and Class C amplifiers. Amplification, oscillation, modulation, and detection with particular emphasis on radio-frequency amplification and broadcast-range reception. Elements of wave propagation and antenna systems.

E. E. 107. Electrical Measurements (4). Prerequisites, E. E. 100 and Math. 64. Laboratory fee, \$4.00.

Measurement and calibration techniques, employing potentiometers, ballistic galvanometers, bridges, electromagnetic and cathode-ray oscillographs, watt-hour meters, and electronic instruments.

E. E. 108. Electric Transients (3). Prerequisites E. E. 101, and Math. 64.

Required of seniors in electrical engineering. Current, voltage, and power transients in lumped-parameter networks. Introduction and utilization of Laplace transforms.

E. E. 109. Pulse Techniques (3). Prerequisite, E. E. 105. Required of seniors in electrical engineering.

Generation, shaping, amplification, and delay of non-sinusoidal wave-forms. Circuit design techniques and applications to radar, television, and computers.

E. E. 110. Transistor Circuitry (3). Prerequisite, E. E. 101.

P-n junction theory: point contact and junction-type transistors; transistor parameters; equivalent circuits; typical transistor amplifier and oscillator circuits.

E. E. 114. Applied Electronics (3). Prerequisite, E. E. 101.

Detectors and discriminators; gas tube characteristics and associated circuits; photoelectric tubes and associated circuits; rectifiers and regulators; vacuum tube instruments.

E. E. 115. Feedback Control Systems (3). Prerequisites, E. E. 101 and E. E. 108. Laboratory fee, \$4.00.

Servomechanism and automatic regulators; investigations of electric, hydraulic, pneumatic, and mechanical elements; analysis of system differential equations and development of transfer functions; stability criteria.

E. E. 120. Maxwell's Equations (3). Prerequisites, Math 64 and senior standing in electrical engineering or physics.

Basic mathematical theory of electromagnetic wave propagation employing Maxwell's equations in scalar and vector form and in generalized coordinates; application to wave-guide transmission.

E. E. 160, 161. Vacuum Tubes (3, 3). Prerequisites, Math 64, and senior standing in electrical engineering or physics.

Electron emission; laws of electron motion; space charge effects; noise in vacuum tubes; magnetic lenses; klystrons; magnetrons, photoelectric tubes; other special-purpose tubes.

For Graduates

E. E. 200. Symmetrical Components (3). Prerequisite, E. E. 102.

Application of the method of symmetrical components to synchronous generators, transmission lines, transformers, static loads possessing mutual coupling, and induction motor loads. Methods of calculating positive, negative, and zero sequence reactances of transmission lines. Complete network solution in terms of symmetrical components and comparison of these solutions with that obtained by classical methods. Methods of measuring positive, negative, and zero sequence reactances of synchronous generators.

E. E. 201. Electromagnetic Theory (3). Prerequisite, E. E. 120 or E. E. 215. Required of M.S. degree candidates in electrical engineering.

Theoretical analysis and engineering applications of Laplace's, Poisson's, and Maxwell's equations.

E. E. 202, 203. Transients in Linear Systems (3, 3). Prerequisite, undergraduate major in electrical engineering, mechanical engineering, or physics. Required of M.S. degree candidates in electrical engineering.

Operational circuit analysis; the Fourier integral, transient analysis of electrical and mechanical systems and vacuum tube circuits by the Laplace transformer method.

E. E. 204. Advanced Circuit Analysis (3). Prerequisites, undergraduate major in electrical engineering or physics.

The mathematics of circuit analysis including determinants, matrices, complex variable, and the Fourier integral.

E. E. 206, 207. Microwave Engineering (3, 3). Prerequisite, E. E. 201. Laboratory fee for E. E. 207, \$4.00.

Basic consideration in solving field problems by differential equations; circuit concepts and their validity at high frequency; propagation and reflection of electromagnetic waves; guided electromagnetic waves; high frequency oscillators and tubes; radiation engineering.

E. E. 212, 213. Automatic Regulation (3, 3). Prerequisite, undergraduate major in electrical or mechanical engineering or physics. (It is desirable that the student should have had E. E. 202.)

The design and analysis of regulatory systems, emphasizing servo-mechanisms. Regulatory systems are analyzed by means of the governing differential equations to provide background for more practical studies of frequency spectrum analysis. Characteristics of actual systems and practical considerations are studied.

E. E. 215, 216. Radio Wave Propagation (3, 3). Prerequisite, undergraduate major in electrical engineering, physics, or mathematics. Either E. E. 120 or E. E. 215 required of M.S. degree candidates in electrical engineering.

Maxwell's wave equation; concept of retarded magnetic vector potential, propagation over plane earth; propagation over spherical earth; refraction; meteorological effects; complex antennas; air to-air propagation; lobe modulation.

E. E. 218, 219. Signal Analysis and Noise (3, 3). Three lectures a week. Prerequisite, undergraduate major in electrical engineering or physics.

Fourier series and integrals; phase and frequency modulation; noise figures of linear systems; shot effect; power spectra; applications of correlation function; properties of noise.

E. E. 232. Active Network Analysis (3). Prerequisite, E. E. 202 or E. E. 204.

The complex frequency plane; conventional feedback amplifier theory; Bode's mathematical definitions of feedback and sensitivity; theorems for feedback circuits; stability and physical realizability of electrical networks; Nyquist's and Routh's criteria for stability.

E. E. 233. Network Synthesis (3). Prerequisite, E. E. 232 or consent of instructor.

Design of driving-point and transfer impedance functions with emphasis on the transfer loss and phase of minimum-phase networks; flow diagrams; physical network characteristics, including relations existing between the real and imaginary components of network functions; modern methods of network synthesis.

E. E. 235. Applications of Tensor Analysis (3). Prerequisite, E. E. 202.

The mathematical background of tensor notation which is applicable to electrical engineering problems. Applications of tensor analysis to electric circuit theory and to field theory.

E. E. 250. Electrical Engineering Research. Prerequisite, approved application for candidacy to the degree of Master of Science or Doctor of Philosophy in electrical engineering. Six semester hours of credit in E. E. 250 are required of M.S. degree candidates and a minimum of eighteen semester hours is required of Ph.D. candidates.

A thesis covering an approved research problem and written in conformity with the regulations of the Graduate School is a partial requirement for either the degree of Master of Science or the degree of Doctor of Philosophy in electrical engineering.

ENGLISH LANGUAGE AND LITERATURE

Eng. 1, 2. Composition and American Literature (3, 3). Eng. 1 is the prerequisite of Eng. 2.

Grammar, rhetoric, and the mechanics of writing; frequent themes. Readings will be in American literature.

Eng. 3, 4. Composition and World Literature (3, 3). Prerequisites, Eng. 1, 2. Eng. 3, 4, or Eng. 5, 6, or an acceptable* combination of the two required of sophomores.

Practice in composition. An introduction to world literature, foreign classics being read in translation.

Eng. 5, 6. Composition and English Literature (3, 3). Prerequisite, Eng. 1, 2. Credit will not be given for more than six hours of work in Eng. 3, 4 and 5, 6.

Practice in Composition. An introduction to major English writers.

Eng. 7. Technical Writing (2). Prerequisite, Eng. 1, 2.

For students desiring practice in writing reports, technical essays, or popular essays on technical subjects.

Eng. 8. College Grammar (3)—Prerequisite, Eng. 1, 2.

An analytical study of Modern English grammar, with lectures on the origin and history of inflectional and derivational forms.

Eng. 12. Introduction to Creative Writing (2). Prerequisite, Eng. 1, 2.

Intended primarily for sophomores and juniors of demonstrated ability.

Eng. 14. Expository Writing (3). Prerequisites, Eng. 1, 2. Credit will not be given for Eng. 7 in addition to Eng. 14.

Methods and problems of exposition; practice in several kinds of informative writing, including the preparation of technical papers and reports. Not offered on the College Park campus.

Eng. 115, 116. Shakespeare (3, 3).

Twenty-one important plays.

Eng. 143. Modern Poetry (3).

The chief British and American poets of the twentieth century.

Eng. 144. Modern Drama (3).

The drama from Ibsen to the present.

Eng. 145. The Modern Novel (3).

Major English and American novelists of the twentieth century.

Eng. 148. The Literature of American Democracy (3).

Literature which relates closely to the democratic tradition.

Eng. 150, 151. American Literature (3, 3).

Representative American poetry and prose from colonial times to the present, with special emphasis on the literature of the nineteenth century.

Eng. 155, 156. Major American Writers (3, 3).

Two writers studied intensively each semester.

Eng. 157. Introduction to Folklore (3).

Historical background of folklore studies; types of folklore with particular emphasis on folktales and folksongs, and on American folklore.

*In practice this means one first semester course and one second semester course. Combinations 3-6 and 4-5 are acceptable. 3-5 and 4-6 are not.

Eng. 170. Creative Writing (2). Prerequisite, permission of the instructor.

Eng. 171. Advanced Creative Writing (2). Prerequisite, permission of the instructor.

GEOGRAPHY

Geog. 10. General Geography (3).

Introduction to geography as a field of study. A survey of the content, philosophy, techniques, and application of geography and its significance for the understanding of world problems.

Geog. 20, 21. Economic Geography (3, 3). Cannot be taken for credit by students who have had Geog. 1 and 2 or 60 and 61.

Study of the nature and geographic distribution of the world's resources, its agricultural, mineral, and other industries in relation to such basic factors as land forms, climates, population centers, and trade routes.

Geog. 30. Principles of Morphology (3).

A study of the physical features of the earth's surface and their geographic distribution, including subordinate land forms. Major morphological processes, the development and land forms, and the relationships between various types of land forms and land use problems.

Geog. 35. Map Interpretation and Map Problems (3).

Interpretation of landforms and man-made features on American and foreign maps. Functions, use, and limitations of various types of maps, with emphasis upon topographic maps. Problems of use and interpretation.

Geog. 40. Principles of Meteorology (3).

An introductory study of the weather. Properties and conditions of the atmosphere, and methods of measurement. The atmospheric circulation and conditions responsible for various types of weather and their geographic distribution patterns. Practical applications.

Geog. 41. Introductory Climatology (3). Prerequisite Geog. 40, or permission of the instructor.

Climatic elements and their controls, the classification and distribution of world climates, and relevance of climatic differences to human activities.

Geog. 100. Regional Geography of Eastern Anglo-America (3). Prerequisite, Geog. 1, 2 or Geog. 10, or permission of the instructor.

A study of the cultural and economic geography and the geographic regions of Eastern United States and Canada, including an analysis of the significance of the physical basis for present-day diversification of development, and the historical geographic background.

Geog. 101. Regional Geography of Western Anglo-America (3). Prerequisite, Geog. 1, 2 or Geog. 10, or permission of the instructor.

A study of Western United States, Western Canada and Alaska along the lines mentioned under Geog. 100.

Geog. 103. Geographic Concepts and Source Materials (2).

A comprehensive and systematic survey of geographic concepts designed exclusively for teachers. Stress will be placed upon the philosophy of geography in relation to the social and physical sciences, the use of the primary tools of geography, source materials, and the problems of presenting geographic principles.

Geog. 104. Geography of Major World Regions (2).

A geographic analysis of the patterns, problems, and prospects of the world's principal human-geographic regions, including Europe, Anglo-America, the Soviet Union, the Far East, and Latin America. Emphasis upon the causal factors of differentiation and the role geographic differences play in the interpretation of the current world scene. This course is designed especially for teachers.

Geog. 105. Geography of Maryland and Adjacent Areas (3). Prerequisite, permission of the instructor.

An analysis of the physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

Geog. 120. Economic Geography of Europe (3).

The natural resources of Europe in relation to agricultural and industrial development and to present-day economic and national problems.

Geog. 130, 131. Economic and Political Geography of Southern and Eastern Asia (3, 3).

A study of China, Japan, India, Burma, Indo-China and Indonesia; natural resources, population, and economic activities. Comparisons of physical and human potentialities of major regions and of the economic, social, and political development.

Geog. 134, 135. Cultural Geography of East Asia (3, 3).

A comprehensive and systematic survey of the geographical distribution and interpretation of the major racial groups and cultural patterns of China, Japan, and Korea. Special emphasis will be placed on the unique characteristics of the peoples of these areas, their basic cultural institutions, outlooks on life, contemporary problems, and trends of cultural change. Designed especially for students of the social sciences, and those preparing for careers in foreign service, foreign trade, education, and international relations.

Geog. 140. Soviet Lands (3).

The natural environment and its regional diversity. Geographic factors in the expansion of the Russian State. The geography of agricultural and industrial production, in relation to available resources, transportation problems, and diversity of population.

Geog. 150. History and Theory of Cartography (3).

The development of maps throughout history. Geographical orientation, coordinates, and map scales. Map projections, their nature, use, and limitations. Principles of representation of features on physical and cultural maps. Modern uses of maps and relationships between characteristics of maps and use types.

Geog. 155. Problems and Practices of Photo Interpretation (3).

Interpretation of aerial photographs with emphasis on the recognition of landforms of different types and man-made features. Study of vegetation, soil, and other data that may be derived from aerial photographs. Types of aerial photographs and limitations of photo interpretation.

Geog. 190. Political Geography (3).

Geographical factors in national power and international relations; an analysis of the role of "Geopolitics" and "Geostrategy," with special reference to the current world scene.

GOVERNMENT AND POLITICS

G. & P. 1. American Government (3).

This course is designed as the basic course in government for the American Civilization program, and it or its equivalent is a prerequisite to all other courses in the Department. It is a comprehensive study of governments in the United States, national, state, and local.

G. & P. 4. State Government and Administration (3). Prerequisite, G. and P. 1.

A study of the organization and functions of state government in the United States, with special emphasis upon the government of Maryland.

G. & P. 5. Local Government and Administration (3). Prerequisite, G. and P. 1.

A study of the organization and functions of local government in the United States, with special emphasis upon the government of Maryland cities and counties.

G. & P. 97. Major Foreign Governments (3). Prerequisite, G. and P. 1.

An examination of characteristic governmental institutions and political processes in selected major powers, such as Britain, Russia, France, Germany, Italy, Japan, and China. Students may not receive credit in this course and also obtain credit in G. & P. 7, 8, or 10.

G. & P. 101. International Political Relations (3). Prerequisite, G. & P. 1.

A study of the major factors underlying international relations, the influence of geography, climate, nationalism, and imperialism, and the development of foreign policies of the major powers.

G. & P. 102. International Law (3). Prerequisite, G. & P. 1.

Fundamental principles governing the relations of states, including matters of jurisdiction over landed territory, water, airspace, and persons; treatment of aliens; treaty-making; diplomacy; and the laws of war and neutrality.

G. & P. 105. Recent Far Eastern Politics (3). Prerequisite G. & P. 1.

The background and interpretation of recent political events in the Far East and their influence on world politics.

G. & P. 106. American Foreign Relations (3). Prerequisite, G. & P. 1.

The principles and machinery of the conduct of American foreign relations, with emphasis on the Department of State and the Foreign Service, and analysis of the major foreign policies of the United States.

G. & P. 108. International Organization (3). Prerequisite, G. and P. 1.

A study of the objectives, structure, functions, and procedures of international organizations, including the United Nations as well as functional and regional organizations such as the Organization of American States.

G. & P. 110. Principles of Public Administration (3). Prerequisite, G. & P. 1.

A study of public administration in the United States, giving special attention to the principles of organization and management and to fiscal, personnel, planning, and public relations practices.

G. & P. 111. Public Personnel Administration (3). Prerequisite G. & P. 110 or B. A. 160.

A survey of public personnel administration, including the development of merit civil service, the personnel agency, classification, recruitment, examination techniques, promotion, service ratings, training, discipline, employee relations and retirement

G. & P. 112. Public Financial Administration (3). Prerequisite G. & P. 110 or Econ. 142.

A survey of governmental financial procedures including processes of current and capital budgeting, the administration of public borrowing the techniques of public purchasing and the machinery of control through pre-audit and post-audit.

G. & P. 124. Legislatures and Legislation (3). Prerequisite G. & P. 1.

A comprehensive study of legislative organization, procedure, and problems. The course includes opportunities for student contact with Congress and with the Legislature of Maryland.

G. & P. 131, 132. Constitutional Law (3, 3). Prerequisite G. & P. 1.

A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution; the position of the states in the federal system; state and federal powers over commerce; due process of law and other civil rights.

G. & P. 133. Administration of Justice (3). Prerequisite G. & P. 1.

An examination of civil and criminal court structure and procedures in the United States at all levels of government, with special emphasis upon the federal judiciary.

G. & P. 141. History of Political Theory (3). Prerequisite G. & P. 1.

A survey of the principal political theories set forth in the works of writers from Plato to Bentham.

G. & P. 142. Recent Political Theory (3). Prerequisite, G. & P. 1.

A study of nineteenth and twentieth century political thought with special emphasis on recent theories of socialism, communism, and fascism.

G. & P. 144. American Political Theory (3). Prerequisite, G. & P. 1.

A study of the development and growth of American political concepts from the colonial period to the present.

G. & P. 154. Problems of World Politics (3). Prerequisite, G. & P. 1.

A study of governmental problems of international scope such as causes of war, problems of neutrality, and propaganda. Students are required to report on readings from current literature.

G. & P. 174. Political Parties (3). Prerequisite, G. & P. 1.

A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

G. & P. 178. Public Opinion (3). Prerequisite G. & P. 1.

An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda, and pressure groups.

G. & P. 181. Administrative Law (3). Prerequisite G. & P. 1.

A study of the discretion exercised by administrative agencies, including analysis of their functions, their powers over persons and property, their procedures, and judicial sanctions and controls.

G. & P. 197. Comparative Governmental Institutions (3). Prerequisite, G. and P. 1.

A study of major political institutions, such as legislatures, executives, courts, administrative systems, and political parties, in selected foreign governments.

FOR GRADUATES

G. & P. 201. Seminar in International Political Organization (3).

A study of the forms and functions of various international organizations.

G. & P. 202. Seminar in International Law (3).

Reports on selected topics assigned for individual study and reading in substantive and procedural international law.

G. & P. 205. Seminar in American Political Institutions (3).

Reports on topics assigned for individual study and reading in the background and development of American government.

G. & P. 206. Seminar in American Foreign Relations (3).

Reports on selected topics assigned for individual study and reading in American foreign policy and the conduct of American foreign relations.

G. & P. 207. Seminar in Comparative Governmental Institutions (3).

Reports on selected topics assigned for individual study and reading in governmental and political institutions in governments throughout the world.

G. & P. 211. Seminar in Federal-State Relations (3).

Reports on topics assigned for individual study and reading in the field of recent federal-state relations.

G. & P. 213. Problems of Public Administration (3).

Reports on topics assigned for individual study and reading in the field of public administration.

G. & P. 221. Seminar in Public Opinion (3).

Reports on topics assigned for individual study and reading in the field of public opinion.

G. & P. 223. Seminar in Legislatures and Legislation (3).

Reports on topics assigned for individual study and reading about the composition and organization of legislatures and about the legislative process.

G. & P. 224. Seminar in Political Parties and Politics (3).

Reports on topics assigned for individual study and reading in the fields of political organization and action.

G. & P. 225. Man and the State (3).

Individual reading and reports on such recurring concepts in political theory as liberty, equality, justice, natural law and natural rights, private property, sovereignty, nationalism, and the organic state.

G. & P. 231. Seminar in Public Law (3).

Reports on topics assigned for individual study and reading in the fields of constitutional and administrative law.

G. & P. 261. Problems of Government and Politics (3).

Credit according to work accomplished.

G. & P. 299. Thesis Course. (Arranged).

HEALTH

In addition to the Health courses listed below consult the College of Physical Education, Recreation and Health catalog for graduate level courses in the Health field.

For Advanced Undergraduates and Graduates

Hea. 160. Problems in School Health Education in Elementary and Secondary Schools (2-6).

This is a workshop type course designed particularly for in-service teachers to acquaint them with the best methods of providing good health services, healthful environment and health instruction.

Hea. 170. The Health Program in the Elementary School (3). Prerequisites, Hea. 2 and 4 or Hea. 40.

This course, designed for the elementary school classroom teacher, analyzes biological, sociological, nutritional and other factors which determine the health status and needs of the individual elementary school child. The various aspects of the school program are evaluated in terms of their role in health education.

The total school health program is surveyed from the standpoint of organization and administration, and health appraisal. Emphasis is placed upon modern methods and current materials in health instruction. (The State Department of Education accepts this course for biological science credit.)

Hea. 189. Field Laboratory Projects and Workshops (1-6). First and second semesters and summer.

A course designed to meet the needs of persons in the field with respect to workshops and research projects in special areas of knowledge not covered by regularly structured courses.

Note: The maximum total number of credits that may be earned toward any degree in Physical Education, Recreation, or Health Education under P. E., Rec., Hea., or Ed. 189 is six.

Hea. 190. Administration and Supervision of School Health Education (3).

The application of the principles of administration and supervision to school health education. The course should be taken during the semester in which the student is doing student teaching.

For Graduates

Hea. 220. Principles and Practice of Health Education (3).

A course dealing with an analysis of physical, mental, and social factors which influence the total health status during the developmental process. The role of education in fostering physical and mental health is studied.

Hea. 240. Advancements in Modern Health (3).

This course is designed to review the developments in those scientific and medical areas upon which the concepts of modern health education is based.

Hea. 250. Health Problems in Guidance (3).

A course designed to familiarize guidance counselors with the principles of health and with common deviations from health, especially during the school year. Implications of health for pupil effectiveness in the entire curriculum, including extra-class activities, are dealt with. Special attention is given to psychosomatic disturbances which are commonly an aspect of personal problem situations. Methods of dealing with health problems and utilizing available resources of school and community are discussed.

Hea. 260. Public Health Education (3).

A course designed to acquaint the student with the structure, functions and major problems in public health; and with the role of education in public health.

HISTORY**H. 1, 2. History of Modern Europe (3, 3).**

The basic course, prerequisite, for all advanced courses in European History. A study of European history from the Renaissance to the present day.

H. 5, 6. History of American Civilization (3, 3). Required for graduation of all students who enter the University after 1944-45. Normally to be taken in the sophomore year.

H. 53, 54. History of England and Great Britain (3, 3).

A history of the development of British life and institutions. Open to all classes. Especially recommended for English majors and minors. First semester to 1485. Second semester, since 1485.

H. 101. American Colonial History (3). Prerequisites, H. 5, 6, or the equivalent.

The settlement and development of colonial America to the middle of the eighteenth century.

H. 102. The American Revolution (3). Prerequisites, H. 5, 6, or the equivalent.

The background and course of the American Revolution through the formation of the Constitution.

H. 105. Social and Economic History of the United States to 1865 (3). Prerequisites, H. 5, 6, or the equivalent.

A synthesis of American Life from its independence through the Civil War.

H. 106. Social and Economic History of the United States since the Civil War (3). Prerequisites, H. 5, 6, or the equivalent.

The development of American life and institutions, with emphasis upon the period since 1876.

H. 115. The Old South (3). Prerequisites, H. 5, 6, or the equivalent.

A study of the institutional and cultural life of the ante-bellum South with particular reference to the background of the Civil War.

H. 116. The Civil War (3). Prerequisites, H. 5, 6, or the equivalent.

Military aspects; problems of the Confederacy; political, social, and economic effects of the war upon American society.

H. 118, 119. Recent American History (3, 3). Prerequisites, H. 5, 6, or the equivalent.

Party politics, domestic issues, foreign relations of the United States since 1890. First semester, through World War I. Second semester, since World War I.

H. 127, 128. Diplomatic History of the United States (3, 3)—Prerequisites, H. 5, 6, or the equivalent.

A historical study of the diplomatic negotiations and foreign relations of the United States. First semester, from the Revolution to the Civil War; second semester, from the Civil War to the present.

H. 129. The United States and World Affairs (3)—Prerequisites, H. 5, 6, or the equivalent.

A consideration of the changed position of the United States with reference to the rest of the world since 1917.

H. 135, 136. Constitutional History of the United States (3, 3). Prerequisites, H. 5, 6, or the equivalent.

A study of the historical forces resulting in the formation of the Constitution, and the development of American constitutionalism in theory and practice thereafter.

H. 141, 142. History of Maryland (3, 3). Prerequisites, H. 5, 6, or the equivalent.

First semester, a survey of the political, social and economic history of colonial Maryland. Second semester, Maryland's historical development and role as a state in the American Union.

H. 145, 146. Latin-American History (3, 3). Prerequisites, 6 hours of fundamental courses.

A survey of the history of Latin America from colonial origins to the present, covering political, cultural, economic, and social development, with special emphasis upon relations with the United States. First semester, Colonial Latin America. Second semester, the Republics.

H. 171, 172. Europe in the Nineteenth Century, 1815-1919 (3, 3). Prerequisites, H. 1, 2, or H. 53, 54.

A study of the political, economic, social and cultural development of Europe from the Congress of Vienna to the First World War.

H. 175, 176. Europe in the World Setting of the Twentieth Century (3, 3). Prerequisites, H. 1, 2, or H. 3, 4.

A study of political, economic, and cultural developments in twentieth century Europe with special emphasis on the factors involved in the two World Wars and their global impacts and significance.

H. 186. History of the British Empire (3). Prerequisites, H. 1, 2, or H. 53, 54.

The rise of the Second British Empire and the solution of the problem of responsible self-government, 1783-1867; the evolution of the British Empire into a Commonwealth of nations, and the development and problems of the dependent Empire.

H. 191. History of Russia (3). Prerequisites, H. 1, 2, or the equivalent.
A history of Russia from the earliest times to the present day.

H. 192. Foreign Policy of the USSR (3). Prerequisite, H. 191.

A survey of Russian foreign policy in the historical perspective, with special emphasis on the period of the USSR. Russian aims, expansion, and conflicts with the western powers in Europe, the Near and Middle East, and the Far East will be studied.

H. 195. The Far East (3).

A survey of the institutional, cultural and political aspects of the history of China and Japan, and a consideration of present-day problems of the Pacific area.

H. 200. Research (3-6)—Credit proportioned to amount of work.

H. 201. Seminar in American History (3).

H. 250. Seminar in European History (3).

H. 282. Problems in the History of World War II (3). Investigation of

various aspects of the Second World War, including military operations, diplomatic phases, and political and economic problems of the war and its aftermath.

H. 287. Historiography (3).

Readings and occasional lectures on the historical writing, the evolution of critical standards, the rise of auxiliary sciences, and the works of selected masters.

HUMAN DEVELOPMENT EDUCATION

H. D. Ed. 102, 103, 104. Child Development Laboratory I, II and III (2, 2, 2). Prerequisite, General or Educational Psychology or any course in Human Development.

This course involves the direct study of children throughout the school year. Each participant gathers a wide body of information about an individual; presents the accumulating data from time to time to the study group for criticism and group analysis, and writes an interpretation of the dynamics underlying the child's learning, behavior and development.

H. D. Ed. 200. Introduction to Human Development and Child Study (3).

This course offers a general overview of the scientific principles which describe human development and behavior and makes use of these principles in the study of individual children. Each student will observe and record the behavior of an individual child throughout the semester and must have one half-day a week free for this purpose. The course is basic to further work in child study and serves as a prerequisite for advanced courses where the student has not had field work or at least six weeks of workshop experience in child study.

H. D. Ed. 201. Biological Bases of Behavior (3).

This course emphasizes that understanding human life, growth and behavior depends on understanding the ways in which the body is able to capture, control and expand energy. Application throughout is made to human body processes and implications for understanding and working with people. H. D. 250 a or b or c must be taken concurrently with this course. (Prerequisite, H. D. Ed. 200.)

H. D. Ed. 202. Social Bases of Behavior (3).

This course analyzes the socially inherited and transmitted patterns of pressures, expectations and limitations learned by an individual as he grows up. These are considered in relation to the patterns of feeling and behaving which emerge as the result of growing up in one's social group. H. D. Ed. 250a or b or c must be taken concurrently with this course. (Prerequisite, H. D. Ed. 200.)

H. D. Ed. 250a, 250b, 250c. Direct Study of Children (1, 1, 1).

This course provides the opportunity to observe and record the behavior of an individual child in a nearby school. These records will be used in conjunction with the advanced courses in Human Development and this course will be taken concurrently with such courses. Teachers active in their jobs while taking advanced courses in Human Development may use records from their own classrooms for this course. May not be taken concurrently with H. D. Ed. 102, 103, 104, or H. D. Ed. 200.

H. D. Ed. 270. Seminars in Special Topics in Human Development (2-6).

An opportunity for advanced students to focus in depth on topics of special interest growing out of their basic courses in human development. Prerequisites, consent of the instructor.

INDUSTRIAL EDUCATION

(The courses below do not constitute a complete listing of Industrial Education offerings but are the courses currently offered at off-campus centers).

Ind. Ed. 28. Electricity I (2).

An introductory course to electricity in general. It deals with the electrical circuit, elementary wiring problems, the measurement of electrical energy, and a brief treatment of radio. Laboratory fee, \$5.00.

Ind. Ed. 48. Electricity II (2).

Principles involved in A-C and D-C electrical equipment, including heating measurements, motors and control, electro-chemistry, the electric arc, inductance and reactance, condensers, radio, and electronics. Laboratory fee, \$5.00.

Ind. Ed. 50. Methods of Teaching (2).

For vocational and occupational teachers of shop and related subjects. The identification and analysis of factors essential to helping others learn; types of teaching situations and techniques; the use of instructional aids; measuring results and grading student progress in shop and related technical subjects.

Ind. Ed. 60. Observation and Demonstration Teaching (2). (Offered in Baltimore only.)

Prerequisite, Educational Psychology and/or Methods of Teaching Vocational and Occupational Subjects.

Primarily for vocational and occupational teachers. Sixteen hours of directed observation and demonstration teaching. Reports, conferences, and critiques constitute the remainder of scheduled activities in this course.

Ind. Ed. 124 a, b. Organized and Supervised Work Experience (3 credits for each internship period, total: 6 credits).

This is a work experience sequence planned for students enrolled in the curriculum, "Education for Industry". The purpose is to provide the students with opportunities for first-hand experiences with business and industry. The student is responsible for obtaining his own employment with the coordinator advising him as regards the job opportunities which have optimum learning value.

The nature of the work experience desired is outlined at the outset of employment and the evaluations made by the student and the coordinator are based upon the planned experiences.

The time basis for each internship period is 6 forty-hour weeks or 240 work hours. Any one period of internship must be served through continuous employment in a single establishment. Two internship periods are required. The two internships may be served with the same business or industry.

The completion for credit of any period of internship requires the employer's recommendation in terms of satisfactory work and work attitudes.

More complete details are found in the handbook prepared for the student of this curriculum.

Ind. Ed. 143. Industrial Safety Education I (2).

This course deals briefly with the history and development of effective safety programs in modern industry and treats causes, effects, and values of industrial safety education inclusive of fire prevention and hazard controls.

Ind. Ed. 144. Industrial Safety Education II (2).

This course presents exemplary safety practices through conference discussions, group demonstrations, and organized plant visits to selected industrial situations. Methods of fire precautions and safety practices are emphasized. Evaluative criteria in safety programs are formulated.

Ind. Ed. 145, 146. Industrial Hygiene Education (2, 2).

Ind. Ed. 145 deals with the theory and Ind. Ed. 146 with the practices of the following: Organization of plant medical department; medical services in industry; prevention and control of occupational disease; control of air contamination; the venereal disease problem in industry; fatigue; nutrition; sanitation; illumination; noise; radiant energy; heating and ventilation; maximum use of manpower; absenteeism.

Ind. Ed. 150. Training Aids Development (2).

Study of the aids in common use as to their source and application. Special emphasis is placed on principles to be observed in making aids useful to shop teachers. Actual construction and application of such aids will be required.

Ind. Ed. 161. Principles of Vocational Guidance (2).

This course identifies and applies the underlying principles of guidance to the problems of educational and vocational adjustment of students.

Ind. Ed. 164. Shop Organization and Management (2).

This course covers the basic elements of organizing and managing an Industrial Education program including the selection of equipment and the arrangement of the shop.

Ind. Ed. 167. Problems in Occupational Education (2).

The purpose of this course is to obtain, assemble, organize, and interpret data relative to the scope, character and effectiveness of occupational education.

Ind. Ed. 168. Trade or Occupational Analysis (2).

Provides a working knowledge of occupational and job analysis which is basic in organizing vocational-industrial instruction. This course should precede Ind. Ed. 169.

Ind. Ed. 169. Course Construction (2).

Surveys and applies techniques of building and reorganizing course materials for effective use in vocational and occupational schools.

Ind. Ed. 170. Principles of Vocational Education (2).

The course develops the Vocational Education movement as an integral phase of the American program of public education.

Ind. Ed. 171. History of Vocational Education (2).

An overview of the development of Vocational Education from primitive times to the present.

FOR GRADUATES**Ind. Ed. 207. Philosophy of Industrial Arts Education (2).**

This course is intended to assist the student in his development of a point of view as regards Industrial Arts and its relationship with the total educational program. He should, thereby, have a "yardstick" for appraising current procedures and proposals and an articulateness for his own professional area.

Ind. Ed. 214. School Shop Planning and Equipment Selection (2).

This course deals with principles involved in planning a school shop and provides opportunities for applying these principles. Facilities required in the operation of a satisfactory shop program are catalogued and appraised.

Ind. Ed. 220. Organization, Administration and Supervision of Vocational Education (2).

This course surveys objectively the organization, administration, supervision, curricular spread and viewpoint, and the present status of vocational education.

Ind. Ed. 240. Research in Industrial Arts and Vocational Education (2).

This is a course offered by arrangement for persons who are conducting research in the areas of Industrial Arts and Vocational Education.

Ind. Ed. 241. Content and Method of Industrial Arts (2).

Various methods and procedures used in curriculum development are examined and those suited to the field of Industrial Arts education are applied. Methods of and devices for Industrial Arts instruction are studied and practiced.

Ind. Ed. 248. Seminar in Industrial Arts and Vocational Education (2).**JOURNALISM AND PUBLIC RELATIONS****Jour. 165. Feature Writing (3).**

Writing and selling of magazine and newspaper feature articles.

P. R. 166. Public Relations (3).

Survey of public relations; general orientation, principles and techniques.

P. R. 170. Publicity Techniques (3).

Strategy and techniques of Publicity. Orientation and practice in the use of major media of public communication.

LANGUAGES AND LITERATURE, FOREIGN

A student who offers two units of a foreign language from high school will not receive credit in college for the first semester of the introductory course in that language.

French**French 1, 2. Elementary French (3, 3).**

Elements of grammar; pronunciation and conversation; exercises in composition and translation.

French 4, 5. Intermediate Literary French (3, 3). Prerequisite, French 1 and 2 or equivalent.

Reading of texts designed to give some knowledge of French life, thought, and culture.

French 80, 81. Advanced Conversation (3, 3). Prerequisite, consent of the instructor.

For students who wish to develop fluency and confidence in speaking the language.

German**German 1, 2. Elementary German (3, 3).**

Elements of grammar; pronunciation and conversation; exercises in composition and translation.

German 4, 5. Intermediate Literary German (3, 3). Prerequisite, German 1, 2, or equivalent.

Reading of narrative prose designed to give some knowledge of German life, thought, and culture.

German 161, 162. German Civilization (3, 3).

A survey of two thousand years of German history, outlining the cultural heritage of the German people, their great men, tradition, customs, art and literature, with special emphasis on the interrelationship of social and literary history.

Russian**Russian 1, 2. Elementary Russian (3, 3).**

Elements of grammar; composition; pronunciation and translation.

Russian 3. Elementary Conversation (1). Open to all students who have completed their first-year Russian or Russian 1 with the grade A or B.

A practice course in simple spoken Russian.

Russian 4, 5. Intermediate Russian (3, 3). Prerequisite, Russian 1 and 2, or equivalent.

Reading of texts designed to give some knowledge of Russian life, thought, and culture.

Russian 8, 9. Intermediate Conversation (2, 2). Admission by consent of instructor.

An intermediate practice course in spoken Russian.

Spanish

Spanish 1, 2. Elementary Spanish (3, 3). Elements of grammar; pronunciation and conversation; exercises in composition and translation.

Spanish 4, 5. Intermediate Spanish (3, 3). Prerequisite, Spanish 1, 2 or equivalent.

Reading of texts designed to give some knowledge of Spanish and Latin-American life, thought, and culture.

Spanish 251, 252. Seminar (3, 3). Required of all graduate majors in Spanish.

Italian

Italian 1, 2. Elementary Italian (3, 3). Also recommended to advanced students in French and Spanish.

Elements of grammar; pronunciation; exercises in translation.

Italian 3. Elementary Conversation (1). Prerequisite, Italian 1 and consent of instructor.

A practice course in simple Italian.

Modern Greek*

Mod. Gr. 1, 2. Spoken Modern Greek (3, 3).

An intensive course in the colloquial style of Athens with emphasis on the vocabulary of everyday situations and including an introduction to Greek writing.

Mod. Gr. 3. Elementary Conversation (1). Prerequisite, Modern Greek 1, and consent of instructor.

*Courses in Modern Greek are not being offered on the College Park Campus.

Mod. Gr. 4, 5. Intermediate Greek (3, 3). Prerequisite, Modern Greek 1, 2, or equivalent.

Reading of literary texts and newspapers in Modern Greek.

Arabic

Arabic 1, 2. Modern Arabic (3, 3). Offered in European Program only.

Introduction to grammar, translation, and conversation.

MATHEMATICS

In general, students should enroll in only one course in the groups below. In case this rule is not followed credit will be assigned as indicated.

Math. 5, 10, 15. Credit on only one course.

Math. 11, 14. Math. 11—1½ credits; Math. 14—2 credits.

Math. 11, 17. Math. 11—1½ credits; Math. 17—4 credits.

Math. 11, 14, 17. Math. 11—0 credits; Math. 14—2 credits.

Math. 17—4 credits.

Math. 5. General Mathematics (3). Prerequisite, one unit of algebra. Open only to students in the College of Business and Public Administration, the College of Agriculture, College of Military Science, and the Department of Industrial Education. Note regulation above in case student enrolls in more than one of the courses, Math. 5, 10, 15.

Fundamental operations, fractions, ratio and proportion, linear equations, exponents, logarithms, percentage, trade discount, simple interest, bank discount, true discount, and promissory notes.

Math. 6. Mathematics of Finance (3). Prerequisite, Math. 5 or equivalent. Required of students in the College of Business and Public Administration, and open to students in the College of Arts and Sciences only for elective credit.

Line diagrams, compound interest, simple interest, ordinary annuities, general annuities, deferred annuities, annuities due, perpetuities, evaluation of bonds, amortization, and sinking funds.

Math. 10. Algebra (3). Prerequisite, one unit each of algebra and plane geometry. Open to biological, premedical, premedical, College of Military Science, and general Arts and Science students. Note regulation above, in case student enrolls in more than one of the courses, Math. 5, 10, 15.

Fundamental operations, factoring, fractions, linear equations, exponents and radicals, quadratic equations, progressions, logarithms, permutations and combinations, probability and mathematics of investment.

Math. 11. Trigonometry and Analytic Geometry (3). Prerequisite, Math. 10, or equivalent. Open to biological, premedical, premedical, College of Military Science and general Arts and Science students. This course is not recommended

for students planning to enroll in Math. 20. Note regulation above, in case student enrolls in both Math. 11 and 14, or in both Math. 11 and 17.

Trigonometric functions, identities, addition formulas, solution of triangles, coordinates, locus problems, the straight line and circle, conic sections, and graphs.

Math. 13. Elements of Mathematical Statistics (3). Prerequisite, Math. 10 or equivalent.

Frequency distributions, averages, moments, measures of dispersion, the normal curve, curve fitting, regression and correlation.

Math. 110, 111. Advanced Calculus (3, 3). Prerequisite, Math. 21, or equivalent.

Limits, continuous functions, differentiation and integration with application to mechanics, infinite series, Fourier series, functions of several variables, multiple integrals, the theorems of Gauss and Stokes, the calculus of variations.

Math. 114. Differential Equations (3). Prerequisite, Math. 110 or equivalent.

Ordinary differential equations, symbolic methods, successive approximations, solutions in series, orthogonal functions, Bessel functions, Sturmian theory.

Math. 115. Partial Differential Equations (3). Prerequisite, Math. 114.

Partial differential equations of first and second order, characteristics, boundary value problems, systems of equations, applications.

Math. 116. Introduction to Complex Variable Theory (3). Prerequisite, Math. 21, or equivalent. Open to students of engineering and the physical sciences. Graduate students of mathematics should enroll in Math. 210, 211.

Fundamental operations in complex numbers, differentiation and integration, sequences and series, power series, analytic functions, conformal mapping, residue theory, special functions.

Math. 117. Fourier Series (3). Prerequisite, Math. 21, or equivalent.

Representation of functions by series of orthogonal functions. Applications to the solution of boundary value problems of some partial differential equations of physics and engineering.

Math. 126, 127. Introduction to Differential Geometry and Tensor Analysis (3, 3). Prerequisite, Math. 21 or equivalent.

The differential geometry of curves and surfaces with the use of vector and tensor methods, curvature and torsion, moving frames, curvilinear coordinates, the fundamental differential forms, covariant derivatives, intrinsic geometry, curves on a surface, applications to problems in dynamics, mechanics, electricity, and relativity.

Math. 130. Probability (3). Prerequisite, Math. 21 or equivalent.

Combinatory analysis, total, compound and inverse probability, continuous distributions, theorems of Bernoulli and Laplace, theory of errors.

Math. 132. Mathematical Statistics (3). Prerequisite, Math. 21 or equivalent.

Frequency distributions and their parameters, multivariate analysis and correlation, theory of sampling, analysis of variance, statistical inference.

Math. 133. Advanced Statistical Analysis (3). Prerequisite, Math. 132 or equivalent.

Advanced methods in correlation analysis, regression analysis, analysis of variance, and sequential analysis, curve fitting, testing of hypotheses, non-parametric testing, machine tabulation in statistics.

Math. 150, 151. Advanced Mathematics for Engineers and Physicists (3, 3). Prerequisite, Math. 21 or equivalent.

An introduction to advanced mathematical methods and their application to the technical problems of physics and engineering. Topics include Fourier series, matrices, ordinary and partial differential equations of applied mathematics, numerical methods, Bessel functions, complex variables, operational calculus.

Math. 152. Vector Analysis (3). Prerequisite, Math. 21 or equivalent.

Algebra and calculus of vectors and applications.

Math. 153. Operational Calculus (3). Prerequisite, Math. 64 or equivalent.

Operational solutions of ordinary and partial differential equations, Fourier and Laplace transforms.

Math. 155. Numerical Analysis (3). Prerequisite, Math. 21 or equivalent.

A brief survey of computing machines, study of errors involved in numerical computations, the use of desk machines and tables, numerical solution of polynomial and transcendental equations, interpolation, numerical differentiation and integration, ordinary differential equations, systems of linear equations.

Math. 156. Programming for High Speed Computers (3). Prerequisite, Math. 21 or equivalent.

General characteristics of high-speed automatic computers; logic of programming, preparation of flow charts, preliminary and final coding; scaling, use of floating point routines, construction and use of subroutines; use of machine for mathematical operations and for automatic coding. Each student will prepare and, if possible, run a problem on a high speed computer.

MECHANICAL ENGINEERING

For Graduates

M. E. 200, 201. Advanced Dynamics (3, 3). Prerequisites, Mech. 52; Math. 64; M. E. 107; M. E. 109.

Mechanics of machinery. Dynamic forces. Balancing of rotating parts. Vibrations and vibration damping. Critical speeds.

M. E. 202, 203. Applied Elasticity (3, 3). Prerequisite, Mech. 52; Math. 64; M. E. 107.

Advanced methods in structural and experimental stress analysis. Advanced strength of materials involving beam problems, curved bars, thin plates and shells, buckling of bars, plates and shells, etc. Advanced work in stress concentrations, plastic deformations, etc., and problems involving instability of structures.

M. E. 204, 205. Advanced Thermodynamics (3, 3). Prerequisites, M. E. 101, 104, 105; Math. 64.

Advanced problems in thermodynamics on compression of gases and liquids, combustion and equilibrium, humidification and refrigeration and availability. Problems in advanced heat transfer covering the effect of radiation, conduction, and convection, steady and unsteady flow, evaporation and condensation.

M. E. 206, 207. Advanced Machine Design (3, 3). Two lectures and one laboratory period a week. Prerequisites, Math. 64, M. E. 107.

Application of advanced methods of stress analysis to design of special stationary and moving machine parts, including rotating disks, bearings, thick wall cylinders, screw fastenings, crankshafts, etc. Application of linear and torsional vibration and balancing in the design of machine members. Complete design of a machine. Study of current design literature.

M. E. 208, 209. Steam Power Plant Design (3, 3). One lecture and two laboratory periods a week. Prerequisite, M. E. 105.

Design and specifications of power plants with special emphasis on central stations heated by conventional fuels and nuclear reactors. Design of all components including turbines, boilers, and reactors. Problems of water treatment and waste disposal (atomic and ash) are considered.

M. E. 210, 211. Advanced Fluid Mechanics (3, 3). Prerequisites, M. E. 54, Math. 64.

Advanced theory of the flow of fluids and gases. Hydrodynamic theory. Engineering applications.

M. E. 212, 213. Advanced Steam Power Laboratory (2, 2). One lecture and one laboratory period a week. Prerequisite, registration in M. E. 204, 205.

Research on advanced steam power problems to illustrate and advance steam power theory. Power plant heat balances.

M. E. 214, 215. Advanced Applied Mechanics Laboratory (2, 2). One lecture and one laboratory period a week. Prerequisites, registration in M. E. 200, 201 and M. E. 202, 203.

Illustrative experiments and research on difficult problems in stress analysis. Photoelasticity. Mechanical vibrations, Critical speeds. Dynamic stresses. Fatigue of materials.

M. E. 216, 217. Advanced Internal Combustion Engine Design (3, 3). One lecture and two laboratory periods a week. Prerequisites, M. E. 104, 105; M. E. 106, 107 and registration in M. E. 200, 201 and M. E. 204, 205.

Each student will carry out complete designs of internal combustion engines.

M. E. 218, 219. Advanced Internal Combustion Engine Laboratory (2, 2). One lecture and one laboratory period a week. Prerequisite, registration in M. E. 216, 217.

Advanced laboratory tests and problems in the design of internal combustion engines.

M. E. 220. Seminar—Credit in accordance with work outlined by mechanical engineering staff. Prerequisite, graduate standing in mechanical engineering.

M. E. 221. Research—Credit in accordance with work outlined by mechanical engineering staff. Prerequisite, graduate standing in mechanical engineering.

Research in any field of mechanical engineering as applied mechanics, heat transfer, thermodynamics, heat, power, etc.

M. E. 222. Advanced Metallography (3). Two lectures and one laboratory period a week. Prerequisite, M. E. 53, Mech. 52.

Advanced study of the structure and properties of metals and alloys. Study of the latest developments in ferrous and non-ferrous alloys including stainless steels, high temperature steels, tool steels, aluminum, magnesium and copper alloys. Study of inspection of metals by the use of X-Rays, spectograph, metallograph and magniflux. Review of current literature.

M. E. 223, 224. Steam and Gas Turbine Design (3, 3). Three lectures a week. Prerequisites, M. E. 101, M. E. 104, M. E. 105, Math 64.

Study of nozzles and blades, with application to all types of turbines and compressors based on detailed heat calculations. Design of regenerators and combustors for gas turbines. Applications to jet propulsion. Fundamentals of rocket, pulse jet and ram jet design.

M. E. 225, 226. Advanced Properties of Metals and Alloys (2, 2). Prerequisites, Mech. 52, M. E. 53, 106, M. E. 107.

Properties of metals including Tensile, Impact, Fatigue, Damping Capacity, Hardening, Wear, etc. Fabrication problems and selection of metals and alloys. Service failures. Properties required for nuclear engineering applications. Properties of metals at elevated and extremely low temperatures.

M. E. 227, 228. Theory of Elasticity (3, 3). Prerequisites, Mech. 52, M. E. 53, M. E. 106, M. E. 107, Math. 64, M. E. 202, 203.

Stress and strain at a point. Relation between stresses and strains, general equations of elasticity, plane strain and plane stress, torsion, bending, axially symmetric distribution of stress, plates, thermal stresses, strain energy and approximate methods.

M. E. 229, 230. Jet Propulsion (3, 3). Prerequisites, M. E. 101, M. E. 104, M. E. 105.

Types of thermal jet units. Fluid reaction and propulsive efficiency. Performance of rockets, aerothermodynamics, combustion chemical kinetics, aerodynamics of high-speed air flow. Principles and design of solid and liquid propellant rockets. Design of turbojets and aerjets, ramjets and hydroduct units, including combustion chambers, turbines and compressors.

M. E. 231, 232. Advanced Heat Transfer (3, 3). Three lectures a week. Prerequisites, M. E. 101, M. E. 102 and M. E. 105. Required of graduate students in Mechanical Engineering.

Advanced problems covering effects of radiation, conduction, convection, evaporation and condensation. Study of research literature on heat transfer.

M. E. 233, 234. Compressible Flow (3, 3). First and second semesters. Three lectures a week. Prerequisites, M. E. 210, 211 or equivalent.

One and two dimensional subsonic, transonic, and supersonic flow.

MILITARY SCIENCE

M. S. 151. Military Logistics (3).

A study of logistics, including (a) the principles governing the national economic activities and resources necessary to support the armed forces (b) a study of the principles and fundamentals of the elements of military logistics, including supply maintenance, transportation, hospitalization and evacuation, construction and logistics planning (c) research by the student on a selected phase of logistics.

M. S. 152. Military Leadership (3).

Three one-hour classroom periods. A study of the basic requisites, principles and attributes of good military leadership, including both the practical and psychological approaches to the subject. Individual differences in human behavior and the personal element in successful leadership are stressed.

M. S. 153. Military Policy of the United States (3). Prerequisite, History 5 and 6.

A study of our military history and our military concepts and policies, and their effects upon national objectives, national policies. A continuing analysis of all the factors which influence national policies, particularly military policy; an evaluation of the lessons to be learned from this historical study.

M. S. 154. Management of the Military Establishment (3). Prerequisite, M. S. 152.

A study of the need for intelligent and scientific management of the Armed Forces, including a consideration of the background of modern management, the development of the science of management and the emphasis on post-war management of the military establishment. A detailed evaluation of the current thoughts and philosophies of military management.

MUSIC

Music 16. Music Fundamentals for the Classroom Teacher (3). Music 7 and Music 16 may not both be counted for credit.

The fundamentals of music theory and practice, related to the needs of the classroom and kindergarten teacher, and organized in accord with the six-area concept of musical learning.

Music 70, 71. Harmony (3, 3). Prerequisite, completion of Music 8 with a grade of at least B. Two lectures and two laboratory hours per week.

A review of music theory and a study of harmonic progressions, triads, dominant sevenths and ninths, in root positions and inversions. Altered and mixed chords, modulations, enharmonic intervals. Simple harmonization and original composition.

NURSING

Nurs. 9. Nursing in Child Health (2).

This course is designed to help the student gain an understanding and appreciation of the health needs of the child in relation to his physical, mental, emotional, and social development.

Nurs. 108. Applied Psychology (2).

This educational experience is designed to supplement and implement nurses' basic knowledge of psychology and sociology. Through lectures, discussions, and observations focussed on patient and nurse behavior, nurses can become more aware of the importance of, and can be helped to develop, positive nurse-patient relationship.

Nurs. 153. Public Health (3).

Designed to assist the student in the application of her knowledge in caring for patients and their families in the community. Eight weeks field experience with the Baltimore City Health Department is included.

Nurs. 154. Management of a Nursing Unit (2).

This course considers the elementary principles of administration; and the interrelationship of the various departments of a health agency. It deals with the position of the supervisor, staff nurse and other members of the nursing team. Methods of supervision and evaluation of clinical work are included.

Nurs. 158. Bio-statistics (3).

Purpose is to orient the student in the proper interpretation of observational data, and to evaluate quantitative aspects of medical literature. (For Graduate Nurse Students).

Nurs. 199. Pro-seminar (2).

Integration of scope and trends in nursing as compared with theoretical and practical applications. (For Graduate Nurse Students).

PHILOSOPHY

Phil. 1. Introduction to Philosophy (3).

A critical survey of representative philosophical beliefs concerning the nature of man and the nature and function of scientific knowledge and religion.

Phil. 2. Introduction to Philosophy (3).

A critical survey of representative philosophical beliefs concerning the nature and function of morality, government, education and art.

Phil. 114. Contemporary Movements in Philosophy (3).

A survey of recent and present developments in philosophy. Attention will be given to such thinkers as James, Bergson, Russell, Dewey and Whitehead, and to such movements as Pragmatism, Idealism, Naturalism, Positivism and Existentialism. Particular consideration will be paid to the bearing of these developments on contemporary problems of science, religion and society.

Phil. 120. Oriental Philosophy (3).

A brief survey of Indian and Chinese philosophy. Discussion of Indian thought will center about the Rig-Veda, the Upanishads, the Buddhist philosophers and the chief Hindu systems. Discussion of Chinese thought will center about Confucius, Lao-tse and their disciples, particular attention being given to the development of democratic ideals from Mencius to Sun Yat-sen.

Phil. 123. Philosophies Men Live By (3).

An exploration of the fundamental beliefs which determine what men make of their lives and of the world they live in. Each semester classic statements of these beliefs by great philosophers will be chosen for class discussion on the basis of their significance for the problems confronting modern man.

Phil. 130. The Conflict of Ideals in Western Civilization (3).

A critical and constructive philosophical examination of the assumptions, goals, and methods of contemporary democracy, fascism, socialism, and communism, with special attention to the ideological conflict between the United States and Russia.

Phil. 151. Ethics (3).

A critical study of the problems and theories of human conduct aimed at developing such principles of ethical criticism as may be applied to contemporary personal and social problems and to the formulation of an ethical philosophy of life.

Phil. 155. Logic (3).

A critical exposition of deductive logic. The course includes an examination and appraisal of Aristotelian logic and a systematic presentation of the foundations of modern symbolic logic. Consideration is given to the application of the techniques of logic in the organization of knowledge and in scientific method.

PHYSICAL EDUCATION

FOR ADVANCED UNDERGRADUATES

P. E. 120. Physical Education for the Elementary School (3).

This course is designed to orient the general elementary school classroom teacher to physical education. Principles and practices in elementary school physical education are presented and discussed and a large variety of appropriate activities are considered and demonstrated from a standpoint of their use and application at the various grade levels.

P. E. 130. Fundamentals of Body Dynamics (3).

This course is designed to acquaint the elementary teacher with the scientific principles applied to fundamental motor skills, posture and body mechanics as they relate to physical growth and development.

FOR ADVANCED UNDERGRADUATES AND GRADUATES

P. E. 150. Physical Fitness of the Individual (3).

A study of the major physical fitness problems confronting the adult in modern society. Consideration is given to the scientific appraisal, development and maintenance of fitness at all levels. Such problems as obesity, weight reduction, chronic fatigue, posture, and special exercise programs are explored. This course is open to majors in all areas of education.

P. E. 160. Scientific Bases of Movement Applied (3)—Prerequisite, P. E. 100. (Two lectures and one laboratory per week).

An application of selected aspects of physical and biological sciences to fatigue, relaxation, uses of exercise; the corrective therapy aspect of physical and mental rehabilitation; sports for the handicapped; and prevention and care of athletic injuries.

P. E. 170. Supervision in Elementary School Physical Education (3). Prerequisite, P. E. 120.

Principles and techniques of supervision are studied from a standpoint of their application in improving the learning situation in elementary school physical education. Strong emphasis will be given to the concept that modern supervision in elementary school physical education should be based on the application of fundamental democratic principles.

P. E. 180. Measurement in Physical Education and Health (3). Two lecture and two laboratory periods a week.

The application of the principles and techniques of educational measurement to the teaching of health and physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of health and physical education, and in the evaluation of the effectiveness of teaching.

P. E. 189. Field Laboratory Projects and Workshops (1-6).

A course designed to meet the needs of persons in the field with respect to workshops and research projects in special area of knowledge not covered by regularly structured courses.

Note: The maximum total number of credits that may be earned toward any degree in Physical Education, Recreation, or Health Education under P.E., REC., HEA., or ED. 189 is six.

P. E. 190. Administration and Supervision of Physical Education, Recreation, and Health (3).

The application of the principles of administration and supervision to physical education, recreation, and health. This course must be taken during the semester in which the student is doing student teaching.

P. E. 191. The Curriculum in Elementary School Physical Education (3). Prerequisite, P. E. 120.

Curriculum planning and construction is considered from a standpoint of valid criteria for the selection of content in elementary school physical education. Desirable features of cooperative curriculum planning in providing for learning experiences will be presented and discussed.

P. E. 195. Organization and Administration of Elementary School Physical Education (3). Prerequisite, P. E. 120.

This course considers the procedures which are basic to the satisfactory organization

of all phases of the elementary school physical education program. Stress will be placed on the organizational and administrative factors necessary for the successful operation of the program in various types of elementary schools. Strong emphasis will be placed on organization and administration from a standpoint of adapting the program to specific situations.

For Graduates

P. E. 200. Seminar in Physical Education, Recreation, and Health (1).

P. E. 201. Foundations in Physical Education, Recreation, and Health (3).

A study of history, philosophy and principles of physical education, recreation and health as applied to current problems in each area and as related to general education.

P. E. 202. Status and Trends in Elementary School Physical Education (3).

An analysis of the current status and implications for future trends in physical education at the elementary school level. Open to experienced persons in all phases of education.

P. E. 203. Supervisory Techniques in Physical Education, Recreation, and Health (3).

A study of current concepts, principles and techniques of supervision and of their application to the special fields indicated; observation of available supervisory programs and visits with local supervisors; practice in the use of selected techniques.

P. E. 210. Methods and Techniques of Research (3).

A study of methods and techniques of research used in physical education, recreation, and health education; an analysis of examples of their use; and practice in their application to problems of interest to the student.

P. E. 220. Quantitative Methods (3).

A course covering the statistical techniques most frequently used in research pertaining to physical education, recreation, and health education. An effort will be made to provide the student with the necessary skills, and to acquaint him with the interpretations and practical applications of these techniques.

P. E. 230. Source Material Survey (3).

A library survey course, covering the total areas of physical education, recreation, and health, plus research in one specific limited problem of which a digest, including a bibliography, is to be submitted.

P. E. 250. Mental and Emotional Aspects of Physical Education Activities (3). Prerequisites, Psych. 1, or H. D. Ed. 100, 101, or equivalents.

An exploration of psychological aspects of physical education, athletic sports and recreation. Applications of psychology are made to teaching and learning, coaching, athletic efficiency (motivation, emotional upset, staleness, etc.), and the problem of interpreting physical education and recreation experiences. Means of studying problems of these kinds are evaluated.

P. E. 280. The Scientific Bases of Exercise (3). Prerequisites, Anatomy, Physiology, P. E. 100, P. E. 160, or the equivalent.

A critical analysis of the role of physical exercise in modern society with attention given to such topics as: the need for physical exercise, its chronic effects, the role of exercise in attaining good physical condition and fitness, factors determining championship performances, and physical fatigue.

P. E. 287. Advanced Seminar (1-2). Prerequisite P. E. 201 or Hea. 220, or equivalent, or permission of the instructor.

This course is a study of the current problems and trends in the selected fields of Physical Education, Recreation, and Health.

P. E. 288. Special Problems in Physical Education, Recreation and Health (1-6).

Master or Doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for 1-6 hours of credit under this number.

P. E. 289. Research—Thesis (1-5).

Students who desire credits for a Master's thesis, a Doctoral dissertation, or a Doctoral project should use this number.

P. E. 290. Administrative Direction of Physical Education, Recreation, and Health (3).

This is essentially a problem course in which administrative policies and techniques are analyzed in the light of sound educational practice. Opportunities are provided for students to concentrate their efforts upon their own on-the-job administrative problems.

P. E. 291. Curriculum Construction in Physical Education and Health (3).

A study of the principles underlying curriculum construction in Physical Education and Health Education and the practical application of these principles to the construction of a curriculum for a specific situation. The specific content of this course is adjusted to meet the needs of the students enrolled in it.

PHYSICS

Phys. 1. Elements of Physics: Mechanics, Heat, and Sound (3). Two lectures, and one recitation a week. The first half of a survey course in general physics. *This course is for the general student and does not satisfy the requirement of the professional schools.* Prerequisite, successful passing of the qualifying examination in elementary mathematics. Lecture demonstration fee, \$3.00.

Phys. 2. Elements of Physics: Magnetism, Electricity, and Optics (3). The second half of a survey course in general physics. *This course is for the general student and does not satisfy the requirements of the professional schools.* Prerequisite, Phys. 1. Lecture demonstration fee, \$3.00.

Phys. 20. General Physics: Mechanics, Heat, and Sound (5). The first half of a course in general physics. *Required of all students in the engineering curricula.* Math. 20 is to be taken concurrently. Lecture demonstration and laboratory fee, \$10.00.

Phys. 21. General Physics: Optics, Magnetism, and Electricity (5). The second half of a course in general physics. *Required of all students in the engineering curricula.* Prerequisite, Phys. 20. Math. 21 is to be taken concurrently. Lecture demonstration and laboratory fee, \$10.00.

Phys. 100. Advanced Experiments. Three hours laboratory work for each credit hour. One or more credits may be taken concurrently. Prerequisite, Phys. 52 or 54. Laboratory fee, \$10.00 per credit hour.

Phys. 101. Laboratory Arts. Three hours laboratory a week for each credit hour. One or more credits may be taken concurrently. Laboratory fee, \$10.00 per credit hour.

Phys. 102. Optics (3). Three lectures a week. Prerequisites, Phys. 11 or 21 and Math. 21.

Phys. 104, 105. Electricity and Magnetism (3, 3). Prerequisites, Phys. 11 or 21 and Math. 21.

Phys. 106, 107. Theoretical Mechanics (3, 3). Prerequisites, Phys. 51 or consent of instructor.

Phys. 108. Physics of Electron Tubes (3). Three lectures a week. Prerequisite, Phys. 104. Must be taken previously or concurrently.

Phys. 109. Electronic Circuits (4). Four lectures a week. Prerequisite: Phys. 105 must be taken previously or concurrently.

Phys. 111. Physics Shop Techniques (1). One three hour laboratory per week. Laboratory fee, \$10.00.

Phys. 114, 115. Introduction to Biophysics (2, 2). Two lectures a week; Prerequisites: intermediate Phys. and Calculus.

Phys. 116, 117. Fundamental Hydrodynamics (3, 3). Three lectures a week. Prerequisites, Phys. 107 and Math. 21.

Phys. 118. Introduction to Modern Physics (3). Three lectures a week. Prerequisite, Math. 21 and Phys. 11 or 21.

Phys. 119. Modern Physics (3). Prerequisite, Phys. 118.

Phys. 120. Nuclear Physics (4). Prerequisite, Phys. 118, or equivalent.

Phys. 121. Neutron Physics and Fission Reactors (4). Four lectures a week. Prerequisite, Phys. 120.

Phys. 122. Properties of Matter (4). Four lectures per week. Prerequisite, Physics 118 or equivalent.

Phys. 126. Kinetic Theory of Gases (3). Prerequisites, Phys. 107 and Math. 21, or equivalent.

Phys. 130, 131. Basic Concepts of Physics (2, 2). Two lectures a week. Prerequisite, Junior standing. Lecture demonstration fee, \$2.00 per semester.

A primarily descriptive course intended mainly for those students in the liberal arts who have not had any other course in physics. This course does not satisfy the requirements of professional schools nor serve as a prerequisite or substitute for other physics courses. The main emphasis in the course will be on the concepts of physics, their evolution and their relation to other branches of human endeavor.

Phys. 150. Special Problems in Physics. Research or special study. Credit according to work done. Laboratory fee \$10.00 per credit hour when appropriate. Prerequisite, major in physics and consent of Instructor.

Phys. 200, 201. Introduction to Theoretical Physics (5, 5). Primarily for students planning to do graduate work. Prerequisite, advanced standing in physics and mathematics.

Phys. 204. Electrodynamics (4). Prerequisite, Phys. 201.

Phys. 206. Physical Optics (3). Prerequisite, Phys. 201.

Phys. 208, 209. Thermodynamics (2, 2). Prerequisite, Phys. 201, or equivalent.

Phys. 210, 211. Statistical Mechanics and the Kinetic Theory of Gases (2, 2). Prerequisites, Phys. 112 and 201.

Phys. 212, 213. Introduction to Quantum Mechanics (3, 3). Prerequisite, Phys. 201.

Phys. 214. Theory of Atomic Spectra (3). Three lectures a week. Prerequisite, Physics 201.

Phys. 215. Theory of Molecular Spectra (3). Three lectures a week. Prerequisite, Physics 214.

Phys. 222, 223. Boundary-Value Problems of Theoretical Physics (2, 2). Prerequisite, Phys. 201.

Phys. 224, 225. Supersonic Aerodynamics and Compressible Flow (2, 2). Prerequisite, Phys. 201.

Phys. 230. Seminar (1).

Seminars on various topics in advanced physics are held each semester, with the contents varied each year. One semester hour of credit for each seminar each semester.

Phys. 234, 235. Theoretical Nuclear Physics (3, 3). Prerequisite, Phys. 213.

Phys. 236. Theory of Relativity (3). Prerequisite, Phys. 200.

Phys. 237. Relativistic Quantum Mechanics (3). Three lectures per week. Prerequisite, Phys. 213.

Phys. 238. Quantum Theory—selected topics (3). Prerequisites, Phys. 212 and 236.

Phys. 240, 241. Theory of Sound and Vibrations (3, 3). Prerequisite, Phys. 201.

Phys. 242, 243. Theory of Solids (2, 2). Prerequisite, Phys. 213.

Phys. 248, 249. Special topics in modern physics. (2, 2). Two lectures per week. Prerequisite, calculus and consent of instructor.

Phys. 250. Research. (Credit according to work done). Laboratory fee, \$10.00 per credit hour. Prerequisite, approved application for admission to candidacy or special permission of the Physics Department.

PSYCHOLOGY

Psych. 1. Introduction to Psychology (3).

A basic introductory course, intended to bring the student into contact with the

major problems confronting psychology and the more important attempts at their solution.

Psych. 2. Applied Psychology (3). Prerequisite, Psych. 1.

Application of research methods to basic human problems in business and industry, in the professions, and in other practical concerns of everyday life.

Psych. 5. Mental Hygiene (3). Prerequisite, Psych. 1.

The more common deviations of personality; typical methods of adjustment.

Psych. 106. Statistical Methods in Psychology (3). Prerequisite, Psych. 1.

A basic introduction to quantitative methods used in psychological research; measures of central tendency, of spread, and of correlation. Majors in Psychology must take this course in the junior year.

Psych. 110. Educational Psychology (3). Prerequisite, Psych. 1.

Researches on fundamental psychological problems encountered in education; measurement and significance of individual differences, learning, motivation, transfer of training.

Psych. 121. Social Psychology (3). Prerequisite, Psych. 1.

Psychological study of human behavior in social situations; influence of others on individual behavior, social conflict and individual adjustment, communication and its influences on normal social activity.

Psych. 125. Child Psychology (3). Prerequisite, Psych. 1.

Behavioral analysis of normal development and normal socialization of the growing child.

Psych. 128. Human Motivation (3). Prerequisite, Psych. 121.

Review of research literature dealing with determinants of human performance, together with consideration of the major theoretical contributions in this area.

Psych. 131. Abnormal Psychology (3). Prerequisites, three courses in Psychology.

The nature, occurrence, and causes of marked psychological abnormalities, with emphasis on clinical rather than theoretical aspects.

Psych. 161. Industrial Psychology (3). Prerequisite, Psych. 1.

A survey course, intended for those who plan to enter some phase of personnel work, but who do not plan to undertake graduate study.

RECREATION

In addition to the Recreation courses listed below consult the College of Physical Education, Recreation and Health catalog of graduate level courses in the Recreation field.

For Advanced Undergraduates and Graduates

Rec. 130. Leadership Techniques and Practices (3).

A study of the various kinds of levels of leadership exerted by professional and semi-professional workers, some of the difficulties and probable weaknesses to be met, and some of the tangible techniques to be used in personal, staff, and public relationships;

handling of problem children, of personnel, of public relations campaigns, committee gatherings, etc. The group work approach will be emphasized and used, insofar as possible, in the solution of particular problems.

Rec. 150. Camp Management (3).

An advanced camping course for those students with previous training and experience; organization, administration, programming, current trends, evaluation, and special problems. Whenever possible, visiting specialists and field trips will be included.

Rec. 170. General Fundamentals of Recreation (3).

This course is designed for students not majoring in recreation who wish to develop some understanding of the place, importance and potentialities of recreation in modern life. Included will be limited study of the areas of philosophy, program planning, personality and leadership techniques, organization and administration, and interrelationships with other fields.

Rec. 189. Field Laboratory Projects and Workshops (1-6).

A course designed to meet the needs of persons in the field with respect to workshops and research projects in special areas of knowledge not covered by regularly structured courses.

Note: The maximum total number of credits that may be earned toward any degree in Physical Education, Recreation, or Health Education under P. E., REC., HEA., or ED. 189 is six.

Rec. 190. Organization and Administration of Recreation (3).

A study of the organizational patterns for and administrative problems involved in the various kinds of operating recreation groups and agencies; forms of organization; finance and budgets; personnel; areas, facilities, and equipment, etc.

For Graduates

Rec. 202. Philosophy of Recreation (2).

A study of the meanings, relationships, and services of recreation as expressed by past and present authorities and leaders. This course should be of interest to people active in education, social work and related fields.

Rec. 204. Modern Trends in Recreation (3).

A study of emphasis and recent developments in the recreation field as a whole and within its various specialized areas, making particular reference to the current and new literature.

Rec. 240. Industrial Recreation (3).

An introductory study of the philosophy of the practices and problems in industrial recreation. Where possible the course will include opportunities for observation and field work.

Rec. 260. Hospital Recreation (3).

An introductory study of the philosophy of and practices and problems in hospital and institutional recreation. Where possible the course will include opportunities for observation and field work.

SOCIOLOGY

Sociology 1 or its equivalent is prerequisite to all other courses in sociology.

Soc. 1. Sociology of American Life (3).

Sociological analysis of the American social structure; metropolitan, small town, and rural communities; population distribution, composition and change; social organization.

Soc. 2. Principles of Sociology (3).

The basic forms of human association and interaction; social processes; institutions; culture; human nature and personality.

Soc. 52. Criminology (3).

Criminal behavior and the methods of its study; causation; topologies of criminal acts and offenders; punishment, correction, and incapacitation; prevention of crime.

Soc. 64. Courtship and Marriage (3).

A sociological study of courtship and marriage including considerations of physiological and psychological factors. Inter-cultural comparisons and practical considerations. Designed primarily for students in the lower division.

Soc. 105. Cultural Anthropology (3).

Examination and critical analysis of recent applications of anthropological methods and data in the fields of administration, industrial relations, and social and cultural adjustment.

Soc. 112. Rural-Urban Relations (3).

A study of the population and community factors in rural and urban life with emphasis on the suburban community.

Soc. 113. The Rural Community (3).

A detailed study of rural life with emphasis on levels of living, the family, school, and church and organizational activities in the fields of health, recreation, welfare, and planning.

Soc. 114. The City (3).

The rise of urban civilization and metropolitan regions; ecological process and structure; the city as a center of dominance; social problems, control, and planning.

Soc. 115. Industrial Sociology (3).

Social organization of American industry; functions of members of industrial organization, status, social structure, patterns of interaction and relations of industry and society.

Soc. 118. Community Organization (3).

Community organization and its relation to social welfare; analysis of community needs and resources; health, housing, recreation; community centers; neighborhood projects.

Soc. 121, 122. Population (3, 3).

Population distribution, composition and growth in North America and Eurasia; trends in fertility and mortality; migrations; population prospects and policies.

Soc. 123. Ethnic Minorities (3).

Basic social processes in the relations of ethnic groups within the state; immigration groups and the Negro in the United States; ethnic minorities in Europe.

Soc. 141. Sociology of Personality (3).

Development of human nature and personality in contemporary social life; processes of socialization; attitudes, individual differences, and social behavior.

Soc. 144. Collective Behavior (3).

Social interaction in mass behavior; communication processes; structure and functioning of crowds, strikes, audiences, mass movements, and the public.

Soc. 145. Social Control (3).

Forms, mechanisms, and techniques of group influence on human behavior; problems of social control in contemporary society.

Soc. 147. Sociology of Law (3).

Law as a form of social control; interrelation between legal and other conduct norms as to their content, sanctions and methods of securing conformity; law as an integral part of the culture of the group; factors and processes operative in the formation of legal norms; legal as determinants of human behavior.

Soc. 153. Juvenile Delinquency (3).

Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention.

Soc. 154. Crime and Delinquency Prevention (3). Prerequisite, Soc. 52 or Soc. 153, or consent of instructor. (Offered in alternate years with Soc. 156).

Mobilization of community resources for the prevention of crime and delinquency; area programs and projects.

Soc. 164. The Family and Society (3). Prerequisite, Soc. 64, or its equivalent.

Study of the family as a social institution; its biological and cultural foundations, historic development, changing structure and function; the interactions of marriage and parenthood, disorganizing and reorganizing factors in present-day trends. Open to upper division students.

Soc. 171. Family and Child Welfare (3).

Programs of family and child welfare agencies; social services to families and children; child placement; foster families.

Soc. 174. Public Welfare (3).

Development and organization of the public welfare movement in the United States; social legislation; interrelations of federal, state, and local agencies and institutions.

Soc. 186. Sociological Theory (3).

Development of the science of sociology; historical backgrounds; recent theories of society.

Soc. 201. Methods of Social Research (3).

Selection and formulation of research projects; methods and techniques of sociological investigation and analysis. Required of graduate majors in sociology.

Soc. 224. Race and Culture (3).

Race and culture in contemporary society; mobility and the social effects of race and culture contacts and intermixture.

Soc. 255. Seminar: Juvenile Delinquency (3).

Selected problems in the field of juvenile delinquency.

Soc. 256. Crime and Delinquency as a Community Problem (3).

An intensive study of selected problems in adult crime and juvenile delinquency in Maryland.

Soc. 262. Family Studies (3).

Case studies of family situations; statistical studies of family trends; methods of investigation and analysis.

SPEECH AND DRAMATIC ART

Speech 1, 2. Public Speaking (2, 2). Prerequisite for advanced speech courses. Speech I prerequisite for Speech II.

The preparation and delivery of short original speeches; outside readings; reports, etc. It is recommended that this course be taken during the freshman year. Laboratory fee, \$1.00 for each course.

Speech 4. Voice and Diction (3).

Emphasis upon the improvement of voice, articulation, and phonation. May be taken concurrently with Speech 1, 2.

Speech 10. Group Discussion (2).

A study of the principles, methods and types of discussion and their application in the discussion of contemporary problems.

Speech 103, 104. Speech Composition and Rhetoric (3, 3).

A study of rhetorical principles and models of speech composition in conjunction with the preparation and presentation of specific forms of public address. Speech 103 is prerequisite to Speech 104.

Speech 105. Speech-Handicapped School Children (3). Admission by consent of instructor.

The occurrence, identification and treatment of speech handicaps in the classroom. An introduction to speech pathology.

Speech 106. Clinical Practice (1 to 5 credits, up to 9). Prerequisite Speech 105.

Clinical practice in various methods of corrective procedures with various types of speech cases in the University clinic, veterans hospitals, and the public schools. May be taken for 1-5 credit hours per semester. May be repeated for a total of 9 semester hours credit.

Speech 109. Speech and Language Development of Children (3).

An analysis of normal and abnormal processes of speech and language development in children.

Speech 111. Seminar (3). Required of speech majors.

Present-day speech research.

Speech 112. Phonetics (3).

Training in the recognition and production of the sounds of spoken English, with an analysis of their formation. Practice in transcription. Mastery of the international phonetic alphabet.

Speech 120. Speech Pathology (3). Prerequisite, Speech 105.

A continuation of Speech 105, with emphasis on the causes and treatment of organic speech disorders.

Speech 126. Semantic Aspects of Speech Behavior (3).

An analysis of speech and language habits from the standpoint of General Semantics.

Speech 127, 128. Military Speech and Commands (2, 2).

Limited to students in the College of Military Science.

Speech 133. Staff Reports, Briefings, and Visual Aids (3).

Limited to students in the College of Military Science. Prerequisite, Speech 104.

Speech 135. Introduction to Audiology (3).

Study of the basic problems of deafness among children and adults.

Speech 136. Principles of Speech Therapy (3). Prerequisite, Speech 120.

Differential diagnosis of speech and language handicaps and the application of psychological principles of learning, motivation and adjustment in the treatment of speech disorders.

**ROSSBOROUGH INN**

Erected in 1798, the oldest building on the Campus. Lafayette, Washington, and practically all colonial leaders stopped here. This was the first stop on the Old Post Road, Alexandria to Philadelphia, New York and Boston and, later, from Washington to Baltimore.

Rossborough was the first building on the campus of the second agricultural college in the Western Hemisphere, established in 1856, and was the home of the first Agricultural Experiment Station to be established in the United States in 1888. When the old building was remodeled in 1938, huge white letters painted on the ends of the building proclaimed it as the "Maryland Agricultural Experiment Station."

"My Son John Went Out to Ross's to Meet General Lafayette," wrote John Quincy Adams, President of the United States.



UNIVERSITY OF MARYLAND

COLLEGE OF SPECIAL AND CONTINUATION STUDIES

OFF-CAMPUS CENTERS •

CENTERS LOCATED IN THE DISTRICT OF COLUMBIA AREA

As A Part Of The Education Program

For

The Armed Forces And Government Agencies

Andrews Air Force Base

Bolling Air Force Base

Bureau of Aeronautics

Bureau of Ships

David Taylor Model Basin

National Bureau of Standards

Naval Ordnance Laboratory

Naval Research Laboratory

Pentagon

Walter Reed (Army Hospital)

MARYLAND SERVES YOU WHILE YOU SERVE





FORUM ON COMMUNITY PLANNING FOR CEREBRAL PALSY
More than one hundred professional and lay persons attending the Forum which was held in the Student Union Building, University of Maryland, College Park, Maryland.



CERTIFICATION EXERCISES

June 7, 1955

Institute for Maryland Law Enforcement Officers

Reading left to right: Officer George Pattinson, Baltimore Police Department; Dr. Stanley J. Drazek, Associate Dean, College of Special and Continuation Studies; Dr. Thomas B. Symons, Member of the Board of Regents, University of Maryland; Speaking, Mr. Richard H. Stottlett, Director of Institutes, College of Special and Continuation Studies; Chief Daniel B. Wiseman, University Police Department; Attorney General C. Ferdinand Sybert, State of Maryland; and Colonel Arthur L. Shreve, Deputy Director, Maryland Civil Defense Agency.

SUMMER SESSION, 1956

JUNE 25—AUGUST 3

Vernon E. Anderson, Ph.D., Director

- ARTHUR M. AHALT, Professor and Head, Department of Agricultural Education.
B.S., University of Maryland, 1931; M.S., Pennsylvania State College, 1937.
- ALBERT LEE ALFORD, Instructor in Government and Politics.
B.A., University of Akron, 1948; M.A., 1951; Ph.D., Princeton University, 1953.
- FRANK G. ANDERSON, Assistant Professor of Sociology.
B.A., Cornell University, 1941; Ph.D., University of New Mexico, 1951.
- JAMES L. ANDERSON, Research Associate in Physics.
B.S., 1946; M.S., 1949, University of Chicago; Ph.D., Syracuse University, 1952.
- PHILIP E. ARSENAULT, Instructor of Foreign Languages.
B.A., Clark University, 1935; M.A., Princeton University, 1950.
- JOHN P. AUGELLI, Associate Professor of Geography.
B.A., Clark University, 1934; M.A., 1948; Ph.D., Harvard University, 1951.
- WILLIAM T. AVERY, Professor and Head, Department of Classical Languages and Literatures.
B.A., 1934; M.A., 1935; Ph.D., 1937, Western Reserve University.
- EDWARD W. BAKER, Lecturer in Zoology.
B.S., 1936; Ph.D., 1938, University of California.
- JACK C. BARNES, Instructor of English.
B.A., 1939; M.A., 1947, Duke University; Ph.D., University of Maryland, 1954.
- WHITNEY K. BATES, Instructor of History.
B.A., University of Washington, 1941; M.A., 1948; Ph.D., 1951, University of Wisconsin.
- RICHARD H. BAUER, Associate Professor of History.
B.A., 1924; M.A., 1928; Ph.D., 1935, University of Chicago.
- EARL S. BEARD, Instructor of History.
B.A., Baylor University, 1948; M.A., 1950; Ph.D., 1953, State University of Iowa.
- GLENN H. BECK, Professor and Head of Dairy.
B.S., University of Idaho, 1936; M.S., Kansas State College, 1938; Ph.D., Cornell University, 1950.
- SARAH A. BEMIS, Director of Physical Education, Mary Institute, Missouri. Visiting Lecturer in Physical Education and Director of Summer School Recreation.
B.S., Boston University, 1945; M.A., New York University, 1951.
- GLENN O. BLOUGH, Associate Professor of Education.
B.A., 1929; M.A., 1932, University of Michigan; LL.D., Central Michigan College of Education, 1950.
- CARL BODE, Professor of English.
Ph.B., University of Chicago, 1933; M.A., 1938; Ph.D., 1941, Northwestern University.

BALTIMORE COLLEGE OF DENTAL SURGERY, DENTAL COLLEGE

OFFICERS OF ADMINISTRATION

WILSON HOMER ELKINS, B.A., M.A., B.Litt., D.Phil., *President of the University*

MYRON S. AISENBERG, D.D.S., *Dean*

KATHARINE TOOMEY, *Administrative Assistant*

G. WATSON ALGIRE, M.S., *Director of Admissions and Registrations*

OFFICERS OF INSTRUCTION

1955-1956 SESSION

Emeriti

J. BEN ROBINSON, D.D.S., D. Sc., *Dean Emeritus*

BURT B. IDE, D.D.S., *Professor Emeritus of Operative Dentistry*

Professors

*MYRON S. AISENBERG, Professor of Pathology.

D.D.S., University of Maryland, 1922.

*JOSEPH CALTON BIDDIX, JR., Professor of Oral Diagnosis.

D.D.S., University of Maryland, 1934.

*EDWARD C. DOBBS, Professor of Pharmacology and Therapeutics.

D.D.S., University of Maryland, 1929; B.S., 1952.

‡BRICE MARDEN DORSEY, Professor of Oral Surgery.

D.D.S., University of Maryland, 1927.

*GARDNER PATRICK HENRY FOLEY, Professor of Dental Literature.

B.A., Clark University, 1923; M.A., 1926.

*GRAYSON WILBUR GAVER, Professor of Dental Prosthesis.

D.D.S., University of Maryland, 1922.

*WILLIAM EDWARD HAHN, Professor of Anatomy.

D.D.S., University of Maryland, 1931; A.B., University of Rochester, 1938; M.S., 1939.

*MARION W. McCREA, Professor of Histology and Embryology.

D.D.S., Ohio State University, 1935; M.S., University of Rochester, 1937.

*ERNEST B. NUTTALL, Professor of Fixed Partial Prosthesis.

D.D.S., University of Maryland, 1931.

*ROBERT HAROLD OSTER, Professor of Physiology.

B.S., The Pennsylvania State University, 1923; M.S., 1926; Ph.D., Harvard University, 1933.

KYRLE W. PREIS, Professor of Orthodontics.

D.D.S., University of Maryland, 1929.

*KENNETH VINCENT RANDOLPH, Professor of Operative Dentistry.

D.D.S., University of Maryland, 1939; B.S., 1951.

*DONALD E. SHAY, Professor of Bacteriology.

B.S., Lebanon Valley College, 1937; M.S., University of Maryland, 1938; Ph.D., 1943.

*E. G. VANDEN BOSCHE, Professor of Biochemistry.

A.B., Lebanon Valley College, 1922; M.S., University of Maryland, 1924; Ph.D., 1927.

Associate Professors

- *JOSEPH PATRICK CAPPUCCIO, Associate Professor of Oral Surgery.
B.S., University of Rhode Island, 1943; D.D.S., University of Maryland, 1946.
- ‡BENJAMIN ANTHONY DABROWSKI, Associate Professor of Oral Roentgenology.
A.B., The Johns Hopkins University, 1932; D.D.S., University of Maryland, 1940.
- *STANLEY H. DOSH, Associate Professor of Fixed Partial Prosthesis.
D.D.S., University of Maryland, 1935.
- †HAROLD GOLTON, Associate Professor of Oral Diagnosis.
D.D.S., University of Maryland, 1925.
- GEORGE McLEAN, Associate Professor of Physical Diagnosis and Principles of Medicine.
M.D., University of Maryland, 1916.
- *PETER McLEAN LU, Associate Professor of Fixed Partial Prosthesis.
D.D.S., University of Maryland, 1934.
- *JOSE ENRIQUE MEDINA, Associate Professor of Operative Dentistry.
D.D.S., University of Maryland, 1948.
- *WALTER L. OGGESEN, Associate Professor of Fixed Partial Prosthesis.
D.D.S., University of Maryland, 1926.
- *D. VINCENT PROVENZA, Associate Professor of Histology and Embryology.
B.S., University of Maryland, 1939; M.S., 1941; Ph.D., 1952.
- *WILBUR OWEN RAMSEY, Associate Professor of Dental Prosthesis.
D.D.S., University of Maryland, 1943.
- *DOUGLAS JOHN SANDERS, Associate Professor of Pedodontics.
B.S., Northwestern University, 1946; D.D.S., 1948.
- **NATHAN B. SCHERR, Associate Professor of Pedodontics.
D.D.S., University of Maryland, 1922.
- *JOSEPHINE EZEKIEL SCHUELER, Associate Professor of Visual Aids.
- *GUY PAUL THOMPSON, Associate Professor of Anatomy.
A.B., West Virginia University, 1923; A.M., 1929.
- *L. EDWARD WARNER, Associate Professor of Dental Prosthesis.
D.D.S., University of Maryland, 1931.
- TOBIAS WEINBERG, Associate Professor of Pathology.
A.B., The Johns Hopkins University, 1930; M.D., 1933.
- ‡RILEY S. WILLIAMSON, JR., Associate Professor of Dental Prosthesis.
D.D.S., University of Maryland, 1942.

Assistant Professors

- IRVING I. ABRAMSON, Assistant Professor of Oral Medicine.
D.D.S., University of Maryland, 1932.
- *WILLIAM ROBERT BIDDINGTON, Assistant Professor of Oral Medicine.
D.D.S., University of Maryland, 1948.
- *HUGH M. CLEMENT, JR., Assistant Professor of Operative Dentistry.
D.D.S., University of Maryland, 1944.
- A. BERNARD ESKOW, Assistant Professor of Oral Medicine.
D.D.S., University of Maryland, 1938.
- *YAM-HIN LOUIE, Assistant Professor of Operative Dentistry.
B.S., Lingnan University, Canton, China, 1938; D.D.S., Northwestern University, 1945; M.S.D., 1946.

*Full time ‡Half time

**Deceased March 19, 1956

†Leave of absence

- BURTON ROBERT POLLACK, Assistant Professor of Physiology.
D.D.S., University of Maryland, 1946.
- DANIEL EDWARD SHEHAN, Assistant Professor of Orthodontics.
D.D.S., University of Maryland, 1922.
- E. RODERICK SHIPLEY, Assistant Professor of Physiology.
A.B., The Johns Hopkins University, 1938; M.D., University of Maryland, 1942.
- ARTHUR G. SIWINSKI, Assistant Professor of Oral Surgery.
A.B., The Johns Hopkins University, 1927; M.D., University of Maryland, 1931.
- D. ROBERT SWINEHART, Assistant Professor of Orthodontics.
A.B., Dartmouth College, 1933; D.D.S., University of Maryland, 1937.
- †EDMOND G. VANDEN BOSCH, Assistant Professor of Dental Anatomy.
B.S., The Pennsylvania State University, 1943; D.D.S., University of Maryland, 1947.

Special Lecturers

- ROBERT B. DODD, Professor of Anesthesiology (School of Medicine).
M.D., University of Nebraska, 1945.
- RICHARD LINDENBERG, Lecturer in Neuroanatomy.
M.D., University of Berlin, 1944.
- ETHELBERT LOVETT, Lecturer in Ethics.
D.D.S., Baltimore College of Dental Surgery, 1922.
- PAUL A. PUMPIAN, Lecturer in Jurisprudence.
B.S., University of Maryland, 1950; LL.B., 1953.
- HARRY M. ROBINSON, JR., Professor of Dermatology (School of Medicine).
B.S., University of Maryland, 1931; M.D., 1935.
- F. NOEL SMITH, Lecturer in Dental Prosthesis.
D.D.S., Baltimore College of Dental Surgery, 1923.
- GEORGE HERSCHEL YEAGER, Professor of Clinical Surgery (School of Medicine).
B.S., West Virginia University, 1927; M.D., University of Maryland, 1929.

Instructors

- ALVIN DAVID AISENBERG, Instructor in Pathology.
D.D.S., University of Maryland, 1945.
- STERRETT P. BEAVEN, Instructor in Operative Dentistry.
D.D.S., University of Maryland, 1941.
- JORDAN S. BLOOM, Instructor in Operative Dentistry.
B.A., The Johns Hopkins University, 1949; D.D.S., University of Maryland, 1953.
- SAMUEL HOLLINGER BRYANT, Instructor in Oral Diagnosis.
A.B., Western Maryland College, 1928; D.D.S., University of Maryland, 1932.
- ARTHUR MERRICK BUSHEY, Instructor in Oral Surgery.
D.D.S., University of Maryland, 1950.
- THOMAS F. CLEMENT, Instructor in Oral Medicine.
D.D.S., University of Maryland, 1951.
- JEROME S. CULLEN, Instructor in Clinical Orthodontics.
D.D.S., University of Maryland, 1941.
- †FRED EHRLICH, Instructor in Pedodontics.
D.D.S., University of Maryland, 1947.
- *WILLIAM HENRY GAFFNEY, JR., Instructor in Oral Roentgenology.
B.S., Loyola College, 1950; D.D.S., University of Maryland, 1954.
- *CALVIN JOSEPH GAYER, Instructor in Operative Dentistry.
B.S., University of Maryland, 1950; D.D.S., 1954.

- RALPH JACK GORDON, Instructor in Dental Prosthesis.
D.D.S., University of Maryland, 1933.
- MARVIN M. GRAHAM, Instructor in Fixed Partial Prosthesis.
A.B., Cornell University, 1938; A.M., 1939; D.D.S., University of Pennsylvania, 1943.
- *WILLIAM LEE GRAHAM, Instructor in Oral Diagnosis.
B.S., Marietta College, 1948; D.D.S., University of Maryland, 1953.
- WALTER GRANRUTH, JR., Instructor in Pathology.
B.S., Loyola College, 1950; D.D.S., University of Maryland, 1954.
- PAUL FREDERICK GUERIN, Instructor in Pathology.
A.B., Wittenberg College, 1942; M.D., University of Pennsylvania, 1945.
- *JOHN MILLER HYSON, Instructor in Oral Surgery.
D.D.S., University of Maryland, 1950.
- CONRAD LUCIUS INMAN, Instructor in Anesthesiology.
D.D.S., Baltimore College of Dental Surgery, 1915.
- MELVIN JOHN JAGIELSKI, Instructor in Dental Anatomy.
D.D.S., University of Maryland, 1953.
- FRANK G. KUEHN, Instructor in Clinical Medicine.
A.B., University of North Carolina, 1946; M.D., University of Maryland, 1950.
- LESTER LEBE, Instructor in Oral Diagnosis.
B.S., University of Chicago, 1938; M.D., 1941.
- RICHARD R. C. LEONARD, Instructor in Public Health Dentistry.
D.D.S., Indiana University, 1922; M.S.P.H., University of Michigan, 1944.
- CHARLES E. LOVEMAN, Instructor in Anatomy.
A.B., The Johns Hopkins University, 1935; D.D.S., Columbia University, 1939.
- *MARTIN H. MORRIS, Instructor in Biochemistry.
B.S., Rutgers University, 1952; M.S., 1954.
- FRANK N. OGDEN, Instructor in First Aid and in Charge of Medical Care of Students.
M.D., University of Maryland, 1917.
- *ALBA JANE CARR PROUTT, Junior Instructor in Visual Aids.
B.A., Washington College, 1953.
- LEONARD RAPOPORT, Instructor in Pharmacology.
B.S., University of Maryland, 1937; D.D.S., 1944.
- NORTON MORRIS ROSS, Instructor in Pharmacology.
B.S., University of Connecticut, 1949; D.D.S., University of Maryland, 1954.
- MYRON HILLARD SACHS, Instructor in Anatomy.
D.D.S., Columbia University, 1939.
- *THERESA P. SAKALUSKY, Junior Instructor in Visual Aids.
B.S., Kuntztown State Teachers College, 1952.
- AARON SCHAEFFER, Instructor in Clinical Orthodontics.
B.A., Western Maryland College, 1939; D.D.S., University of Maryland, 1947; M.S., University of Illinois, 1948.
- *FRANK J. SINNREICH, JR., Instructor in Anatomy.
B.S., University of Maryland, 1951.
- GLENN D. STEELE, Instructor in Fixed Partial Prosthesis.
D.D.S., University of Maryland, 1942.
- *CLAUDE P. TAYLOR, Instructor in Visual Aids.
- EARLE HARRIS WATSON, Instructor in Dental Materials and Dental Prosthesis.
A.B., University of North Carolina, 1938; D.D.S., University of Maryland, 1942.

Graduate Assistants

- *MARIA PAZ FLOR, Graduate Assistant in Oral Pathology and Oral Surgery.
D.D.M., University of the Philippines, 1950.

- *ROBERT LUERS HELDRICH, Graduate Assistant in Oral Surgery.
A.B., Gettysburg College, 1951; D.D.S., University of Maryland, 1955.
- *HERBERT H. JAMES, JR., Graduate Assistant in Bacteriology.
B.S., Montana State College, 1951; M.A., Montana State University, 1954.
- *LEONARD H. JARVIS, Graduate Assistant in Oral Surgery.
A.B., West Virginia University, 1952; D.D.S., University of Maryland, 1955.
- *CHARLES BROWN LEONARD, JR., Graduate Assistant in Biochemistry.
B.A., Rutgers College of South Jersey, 1955.
- *MITCHEL POZEGA, Graduate Assistant in Oral Surgery.
A.B., West Virginia University, 1951; D.D.S., University of Maryland, 1955.

Library Staff

Dentistry-Pharmacy

- IDA MARIAN ROBINSON, Librarian and Associate Professor of Library Science.
A.B., Cornell University, 1924; B.S.L.S., Columbia University School of Library Service, 1944.
- HILDA E. MOORE, Associate Librarian.
A.B., Randolph Macon Woman's College, 1936; A.B.L.S., Emory University Library School, 1937.
- BEATRICE MARRIOTT, Reference Librarian.
A.B., University of Maryland, 1944.
- CURTIS G. CROM, Periodicals Librarian.
A.B., George Washington University, 1949; M.S.L.S., Syracuse University Library School, 1954.
- HARRIETTE W. SHELTON, Chief Cataloguer.
B.A., The Pennsylvania State College, 1935; B.S.L.S., Columbia University School of Library Service, 1937.
- MARJORIE FLUCK, Cataloguer.
B.S. in Ed., Kutztown State Teachers College, 1952.
- MARJORIE H. JARVIS, Library Assistant.
- ELIZABETH E. McCOACH, Assistant to the Librarian.
- PATRICIA C. WATKINS, Assistant to the Cataloguer.

Laboratory Technicians

- EARL F. BECKER.....Department of Bacteriology
- JANE C. CLARK, A.B. Department of Anatomy
- ANN K. DENTRY, B.S. Department of Histology
- JOSEPH F. KILLIAN.....Department of Pathology
- LEAH M. PROUTT, B.S., M.S.....Department of Physiology
- MARY H. STIENEMANN.....Department of Roentgenology
- HENRY YEAGER.....Department of Orthodontics

Assisting Staff

- JUNE G. BINGEN, R.N., Assistant in Oral Surgery.
- JOHN S. CHANAUD, Assistant.
- LORRAINE J. COOK, Stenographer.

RUTH E. COOKE, Secretary, Diagnostic Clinic.

MARIE ANTOINETTE DE JULIIS, Stenographer.

JEAN LEE DORSEY, Secretary, Prosthetic Clinic.

ELEANOR B. ECKERT, Stenographer.

JOHANNA K. EICHNER, Information and Case Record Clerk.

ELLEN L. FRANK, Stenographer

MARY A. HAGAN, Secretary, Orthodontic Clinic.

ZITA MARIE KUHN, Secretary, Roentgenology Clinic.

PATRICIA R. MALL, Secretary, Oral Surgery Clinic.

MARY P. O'GRADY, Stenographer.

DOROTHY P. PEREGOY, Accountant, Clinics.

WILLIAM J. SACHS, Assistant.

ADDIE A. SPICER, Cashier.

ANNA TIMCHULA, Stenographer.

KATHERINE L. UNDERWOOD, Stenographer.

HISTORY

The Baltimore College of Dental Surgery occupies an important and interesting place in the history of dentistry. At the end of the regular session—1954-55—it completed its one hundred and fifteenth year of service to dental education. The Baltimore College of Dental Surgery represents the first effort in history to offer institutional dental education to those anticipating the practice of dentistry.

The first lectures on dentistry in America were delivered by Dr. Horace H. Hayden in the University of Maryland, School of Medicine, between the years 1823-25. These lectures were interrupted in 1825 by internal dissensions in the School of Medicine and were as a consequence discontinued. It was Dr. Hayden's idea that dental education merited greater attention than had been given it by medicine or could be given it by the preceptorial plan of dental teaching then in vogue.

Dr. Horace H. Hayden began the practice of dentistry in Baltimore in 1800. From that time he made a zealous attempt to lay the foundation for a scientific, serviceable dental profession. In 1831 Dr. Chapin A. Harris came to Baltimore to study under Hayden. Dr. Harris was a man of unusual ability and possessed special qualifications to aid in establishing and promoting formal dental education. Since Dr. Hayden's lectures had been interrupted at the University of Maryland and there was an apparent unsurmountable difficulty confronting the creation of dental departments in medical schools, an independent college was decided upon. A charter was applied for and granted by the Maryland Legislature February 1, 1840. The first Faculty meeting was held February 3, 1840, at which time Dr. Horace H. Hayden was elected President and Dr. Chapin A. Harris, Dean. The introductory lecture was delivered by Dr. Hayden on November 3, 1840, to the five students matriculating in the first class. Thus was created as the foundation of the present dental profession the Baltimore College of Dental Surgery, the first dental school in the world.

Hayden and Harris, the admitted founders of conventional dental education, contributed, in addition to the factor of dental education, other opportunities for professional growth and development. In 1839 the *American Journal of Dental Science* was founded, with Chapin A. Harris as its editor. Dr. Harris continued fully responsible for dentistry's initial venture into periodic dental literature to the time of his death. The files of the old *American Journal of Dental Science* testify to the fine contributions made by Dr. Harris. In 1840 the American Society of Dental Surgeons was founded, with Dr. Horace H. Hayden as its President and Dr. Chapin A. Harris as its Corresponding Secretary. This was the beginning of dental organization in America, and was the forerunner of the American Dental Association, which now numbers approximately eighty-four thousand in its present membership. The foregoing suggests the unusual influence Baltimore dentists and the Baltimore College of Dental Surgery have exercised on professional ideals and policies.

In 1873, the Maryland Dental College, an offspring of the Baltimore College of Dental Surgery, was organized. It continued instruction until 1878, at which time it was consolidated with the Baltimore College of Dental Surgery. A department of dentistry was organized at the University of Maryland in the year 1882, graduating a class each year from 1883 to 1923. This school was chartered as a corporation and continued as a privately owned and directed

institution until 1920, when it became a State institution. The Dental Department of the Baltimore Medical College was established in 1895, continuing until 1913, when it merged with the Dental Department of the University of Maryland.

The final combining of the dental educational interests of Baltimore was effected June 15, 1923, by the amalgamation of the student bodies of the Baltimore College of Dental Surgery and the University of Maryland, School of Dentistry; the Baltimore College of Dental Surgery becoming a distinct department of the University under State supervision and control. Thus we find in the Baltimore College of Dental Surgery, Dental School, University of Maryland, a merging of the various efforts at dental education in Maryland. From these component elements have radiated developments of the art and science of dentistry until the strength of its alumni is second to none, either in number or degree of service to the profession.

BUILDING

The School of Dentistry is located at the northwest corner of Lombard and Greene Streets, adjoining the University Hospital. The building occupied by the Dental School provides approximately fifty thousand square feet of floor space, is fireproof, splendidly lighted and ventilated, and is ideally arranged for efficient use. It contains a sufficient number of large lecture rooms, classrooms, a library and reading room, science laboratories, technic laboratories, clinic rooms, and locker rooms. It is furnished with new equipment throughout and provides every accommodation necessary for satisfactory instruction under comfortable arrangements and pleasant surroundings.

Special attention has been given to the facilities in clinic instruction. The large clinic wing contains 148 operating spaces; each space contains a chair, operating table and unit equipped with an electric engine, compressed air, gas, running water, etc. Clinic instruction is segregated, and the following departments have been arranged for effective teaching: Operative, Prosthesis (including Fixed Partial Prosthesis and Ceramics), Anesthetics and Surgery, Oral Medicine, Orthodontics, Diagnosis, Pedodontics, Roentgenology, and Visual Aids. All technic laboratories are equipped with every modern facility to promote efficiency in instruction.

LIBRARY

The Dental School is fortunate in having one of the better equipped and organized dental libraries among the dental schools of the country. The Library is located in the main building and consists of a stack room, offices and a reading room accommodating ninety-six students. Over 16,000 books and bound journals on dentistry and the collateral sciences, together with numerous pamphlets, reprints and unbound journals, are available for the student's use. More than 200 journals are regularly received by the Library. An adequate staff promotes the growth of the Library and assists the student body in the use of the Library's resources. The Library is financed by direct appropriations from the State, by the income from the endowment established by the Maryland State Dental Association and by the proceeds of the sale of books to students. One of the most important factors of the dental student's education is to teach

him the value and the use of dental literature in his formal education and in promoting his usefulness and value to the profession during practice. The Baltimore College of Dental Surgery is ideally equipped to achieve this aim of dental instruction.

COURSE OF INSTRUCTION

The Baltimore College of Dental Surgery, Dental School, University of Maryland, offers a course in dentistry devoted to instruction in the medical sciences, the dental sciences, and clinical practice. Instruction consists of didactic lectures, laboratory instruction, demonstrations, conferences, quizzes and hospital ward rounds. Topics are assigned for collateral reading to train the student in the value and use of dental literature. The curriculum for the complete course appears on pages 16 and 17 of this catalogue.

REQUIREMENTS FOR ADMISSION

Applicants for admission must present evidence of having completed successfully two academic years of work in an accredited college of arts and sciences based upon the completion of a four-year high school course or the equivalent in entrance examinations. *The college course must include at least a year's credit in English, in biology, in physics, in inorganic chemistry, and in organic chemistry. All required science courses shall include both classroom and laboratory instruction.* Although a minimum of 60 semester hours of credit, exclusive of physical education and military science, is required, additional courses in the humanities and the natural and social sciences are desirable. By ruling of the Faculty Council, all admission requirements must be completed by June 30 previous to the desired date of admission.

In considering candidates for admission, the Committee on Admissions will give preference to those applicants who have high scholastic records in secondary school and in college; who make satisfactory scores in the dental aptitude tests; who present favorable recommendations from their respective predental committee or from one instructor in each of the departments of biology, chemistry, and physics; and who, in all other respects, give every promise of becoming successful students and dentists of high standing. Applicants will not be admitted with unabsolved conditions or unabsolved failures.

COMBINED ARTS AND SCIENCES-DENTAL PROGRAM

The University offers a combined arts and sciences-dental curriculum leading to the degrees of Bachelor of Science and Doctor of Dental Surgery. The preprofessional part of this curriculum shall be taken in residence in the College of Arts and Sciences at College Park, and the professional part in the School of Dentistry in Baltimore.

Students who elect the combined program and who have completed the arts and sciences phase of it may, upon the recommendation of the Dean of the School of Dentistry, be granted the degree of Bachelor of Science by the College of Arts and Sciences at the commencement following the completion of the student's second year in the School of Dentistry. A student may enter the arts and sciences-dental program at College Park with advanced standing from an accredited college or university, but the last year of the preprofessional training must be completed at College Park and the professional training must be completed in the School of Dentistry of the University of Maryland.

Arts-Dentistry Curriculum

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 1, 2,—Composition and American Literature.....	3	3
Zool. 1—General Zoology.....	4	....
Zool. 2— Advanced General Zoology.....	....	4
Chem. 1, 3—General Chemistry.....	4	4
Math. 10, 11—Algebra, Trigonometry, Analytic Geometry.....	3	3
Speech 18, 19—Introductory Speech.....	1	1
Physical Activities.....	1	1
A. S. 1, 2—Basic Air Force R. O. T. C. (Men).....	3	3
Hea. 2, 4—Hygiene (Women).....	2	2
Total.....	18-19	18-19

Sophomore Year

Eng. 3, 4 or 5, 6—Composition and World or English Literature	3	3
Soc. 1—Sociology of American Life.....	}	3
and		
G. & P. 1—American Government.....	3	3
Chem. 35, 36, 37, 38—Organic Chemistry.....	4	4
*H. 5, 6—History of American Civilization.....	3	3
†Modern Language	3	3
Physical Activities	1	1
A. S. 3, 4—Basic Air Force R. O. T. C. (Men).....	3	3
Total.....	17-20	17-20

Junior Year

Modern Language (continued).....	3	3
Phys. 10, 11—Fundamentals of Physics.....	4	4
Approved Minor Courses.....	9	9
Electives	3	3
Total.....	19	19

Senior Year

The curriculum of the first year of the School of Dentistry of the University of Maryland is accepted by the College of Arts and Sciences as the fourth year (major sequence) of academic work toward the degree of Bachelor of Science.

If at the end of the junior year the student decides to postpone his entrance to the School of Dentistry and to remain in the College of Arts and Sciences and complete work for the Bachelor's degree, he may choose a major and minor in any of the departments in which he has completed the necessary underclass requirements. The general nature of the first three years of this curriculum and the generous electives of the third year make possible for the student a wide choice of departments in which he may specialize. In general the electives of the third year will be chosen as for a major in some particular department.

*Students planning to request admission to the Dental School with only two years of pre dental training should take Physics 10-11.

†Fr. or Ger. 6, 7—Intermediate Scientific French or German recommended.

PLAN OF CURRICULUM 1956-1957 SESSION

	CLOCK HOURS				TOTAL		CREDITS
	Semester I		Semester II		Lect.	Lab.	Total Semester
	Lect.	Lab.	Lect.	Lab.	Lect.	Lab.	
Freshman Class							
Biochemistry	32	48	16	..	64	96	6
Comparative Tooth Morphology	..	..	8	48	24	..	1
Dental Materials	16	96	..	48	..	144	4
Dental Prosthesis	..	..	..	48	..	48	1
Gross Anatomy	32	144	20	60	52	204	8
Histology and Embryology	32	64	32	64	64	128	8
Neuroanatomy	..	..	18	36	18	36	2
Tooth Morphology	..	..	16	72	16	72	3
Total	112	352	142	376	254	728	33
Sophomore Class							
Anesthetics	16	..	16	..	32	..	2
Bacteriology	32	96	..	..	32	96	4
Dental Prosthesis	..	78	..	24	..	102	2
Endodontics	..	..	8	24	8	24	1
First Aid	6	..	..	..	6	..	..
Fixed Partial Prosthesis	16	96	16	96	32	192	6
Operative Dentistry	16	96	10	48	26	144	5
Oral and Written Expression	16	..	16	..	32	..	2
Pathology	..	..	32	96	32	96	4
Pedodontics	..	..	6	48	6	48	1
Periodontics	..	..	8	24	8	24	1
Physiology	32	24	32	36	64	60	6
Total	134	390	144	396	278	786	34

Junior Class	CLOCK HOURS			CREDITS	
	Semester I Lect.	Semester I Lab.	Semester II Lect.	Semester II Lab.	Total Semester
Dental Prosthesis	16	12	16	48	80
Diagnosis and Treatment Planning	16	..	8	..	35
Diagnosis Seminar	4	..	4	..	..
Endodontics	..	..	..	..	18
Fixed Partial Prosthesis	16	36	16	36	60
Operative Dentistry	10	..	16	..	181
Oral Pathology	32	48	32	48	..
Oral Surgery	16	..	16	..	54
Orthodontics	16	..	16	..	..
Pedodontics	6	..	..	..	46
Periodontics	..	..	8	..	18
Pharmacology and Therapeutics	16	..	32	48	..
Principles of Medicine	16	..	16	..	..
Röntgenology	16	48	..	48	20
Total	180	144	148	96	512
Senior Class					34
Dental History	..	..	12	..	..
Dental Prosthesis	16	..	8	..	150
Diagnosis and Treatment Planning	..	..	..	..	25
Endodontics	..	..	8	..	25
Ethics	..	..	..	..	..
Fixed Partial Prosthesis	6	..	..	..	150
Jurisprudence	..	..	8	..	..
Nutritional Therapeutics	..	..	16	..	..
Operative Dentistry	16	..	8	..	310
Oral Surgery	16	..	16	..	80
Oral Therapeutics	16	..	..	..	..
Orthodontics	..	..	..	..	26
Pedodontics	..	..	..	..	80
Periodontics	..	..	..	..	25
Physical Diagnosis	..	..	12	..	..
Practice Administration	12	..	12	..	..
Preventive and Pub. Health Dentistry ..	..	..	16	..	..
Principles of Medicine	16	..	16	..	..
Röntgenology	..	..	..	..	25
Seminar	16	..	16	..	..
Thesis	..	..	..	..	..
Total	114	..	136	250	896
Total					34

REQUIREMENTS FOR MATRICULATION AND ENROLLMENT

In the selection of students to begin the study of dentistry the School considers particularly a candidate's proved ability in secondary education and his successful completion of prescribed courses in predental collegiate training. The requirements for admission and the academic regulations of the College of Arts and Sciences, University of Maryland, are strictly adhered to by the School of Dentistry.

A student is not regarded as having matriculated in the School of Dentistry until such time as he shall have paid the matriculation fee of \$10.00, and is not enrolled until he shall have paid a deposit of \$285.00 if a nonresident or \$175.00 if a resident student. This deposit is intended to insure registration in the class and is not returnable.

APPLICATION PROCEDURES

Candidates seeking admission to the Dental School should first write to the Office of the Dean requesting a preliminary information form. Upon the receipt and the examination of this form by the Committee on Admissions an application blank will be sent to those candidates who merit consideration. Each applicant should fill out the blank in its entirety and mail it promptly, together with the application fee and photographs, to the Committee on Admissions, Dental School, University of Maryland, Baltimore 1, Maryland. The early filing of an application is urged. Applicants wishing advice on any problem relating to their predental training or their application should communicate with the Committee on Admissions.

All applicants will be required to take the Dental Aptitude Test. This test will be given at various testing centers throughout the United States, its possessions and Canada. Applicants will be notified by the Council on Dental Education of the American Dental Association of the dates of the tests and the locations of the testing centers.

Promising candidates will be required to appear before the Committee on Admissions for an interview. On the basis of all available information the best possible applicants will be chosen for admission to the School.

A certificate of entrance will be issued to each successful applicant, which will permit him to matriculate and to register in the class to which he has applied.

ADMISSION WITH ADVANCED STANDING

(a) Graduates in medicine or students in medicine who have completed two or more years in a medical school, acceptable to standards in the School of Medicine, University of Maryland, may be given advanced standing to the Sophomore year *provided* the applicant shall *complete* under competent regular instruction the courses in dental technology regularly scheduled in the first year.

(b) Applicants for transfer must (1) meet fully the requirements for admission to the first year of the dental course; (2) be eligible for promotion to the next higher class in the school from which he seeks to transfer; (3) show an average grade of five per cent above the passing mark in the school where transfer credits were earned; (4) show evidence of scholastic attainments, character and personality; (5) present letter of honorable dismissal and recommendation from the dean of the school from which he transfers.

(c) All applicants for transfer must present themselves in person for an interview before qualifying certificate can be issued.

ATTENDANCE REQUIREMENTS

In order to receive credit for a full session, each student must have entered and be in attendance on the day the regular session opens, at which time lectures to all classes begin, and remain until the close of the session, the dates for which are announced in the calendar of the annual catalogue.

Regular attendance is demanded. A student whose attendance in any course is unsatisfactory to the head of the department will be denied the privilege of final examination in any and all such courses. A student with less than 85 per cent attendance will not be promoted to the next succeeding year. However, in certain unavoidable circumstances of absences, the Dean and Faculty Council may honor excuses exceeding the maximum permitted.

GRADING AND PROMOTION

The following symbols are used as marks for final grades: A (100-91), B (90-84), C (83-77), and D (76-70), Passing; F (below 70), Failure; I, Incomplete. Progress grades in courses are indicated as "Satisfactory" and "Unsatisfactory."

A Failure in any subject may be removed only by repeating the subject in full. Students who have done work of acceptable quality in their completed assignments but who, because of circumstances beyond their control, have been unable to finish all assignments, will be given an Incomplete. A student shall not carry an Incomplete into the next succeeding year. When he has completed the requirements for the removal of an Incomplete, the student shall be given the actual grade earned in the course.

Scholastic averages are computed on the basis of semester credits assigned to each course and numerical values for grades. The numerical values are A-4; B-3; C-2; D-1; F-0. The grade point average is the sum of the products of semester credits and grade values, divided by the total number of semester credits.

Students who attain a grade point average of 1.5 in the Freshman year will be promoted. At the end of the Sophomore year an overall grade point average of 1.75 is required for promotion. A grade point average of 2.0 is required for promotion to the Senior year and for graduation.

EQUIPMENT

A complete list of necessary instruments and materials for technic and clinic courses is prescribed by the Dental School. Arrangements are made by the Dental School in advance of formal enrollment for books, instruments and materials to be delivered to the student at the opening of school. Each student is required to provide himself promptly with these prescribed necessities. A student who does not meet this requirement will not be permitted to continue with his class.

DEPORTMENT

The profession of dentistry demands, and the School of Dentistry requires, of its students evidence of their good moral character. The conduct of the student in relation to his work and fellow students will indicate his fitness to be taken into the confidence of the community as a professional man. In-

tegrity, sobriety, temperate habits, truthfulness, respect for authority and associates and honesty in the transaction of business affairs as a student will be considered as evidence of good moral character necessary to the granting of a degree.

REQUIREMENTS FOR GRADUATION

The degree of Doctor of Dental Surgery is conferred upon a candidate who has met the following conditions:

1. A candidate must furnish documentary evidence that he has attained the age of 21 years.
2. A candidate for graduation shall have attended the full scheduled course of four academic years.
3. He will be required to show a grade point average of 2.0 for the full course of study.
4. He shall have satisfied all technic and clinic requirements of the various departments.
5. He shall have paid all indebtedness to the college prior to the beginning of final examinations, and must have adjusted his financial obligations in the community satisfactorily to those to whom he may be indebted.

FEES

Matriculation fee (required of all entering students).....	\$ 10.00
Tuition (each year):	
Non-resident student	675.00
Resident student	400.00
Student health service (each year).....	20.00
Laboratory breakage deposit:	
Freshman year	10.00
Sophomore and Junior years.....	5.00
In addition to fees itemized in the above schedule, the following assessments are made by the University:	
Application fee (paid at time of filing formal application for admission)	7.50
Late registration fee	5.00
(All students are expected to complete their registration, including payment of bills, on the regular registration days.) Those who do not complete their registration during the prescribed days will be charged a fee of \$5.00.	
Examinations taken out of class and re-examinations	5.00
One certified transcript of record is issued free of charge.	
Each additional copy is issued only upon payment of.....	1.00

Student Activities Fee—Special

For the purpose of administering and disciplining various student activities, the Student Senate, after approval by the separate classes and the Faculty Council, voted a fee of \$12.50 to be paid at the time of registration to the Office of the Dean.

Refunds

According to the policy of the University no fees will be returned. In case the student discontinues his course or fails to register after a place has been

reserved in a class, any fees paid will be credited to a subsequent course, but are not transferable.

REGISTRATION

The registration of a student in any school or college of the University shall be regarded as a registration in the University of Maryland, but when such student transfers to a professional school of the University or from one professional school to another, he must pay the usual matriculation fee required by each professional school.

Each student is required to fill in a registration card for the office of the Registrar, and make payment of one-half of the tuition fee in addition to all other fees noted as payable before being admitted to classwork at the opening of the session. The remainder of tuition and fees must be in the hands of the Comptroller during registration period for the second half of the academic year.

The above requirements will be rigidly enforced.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in this state for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents of the state by maintaining such residence for at least one full year. However, the right of the minor student to change from a non-resident to resident status must be established by him prior to the registration period for any semester.

Adult students are considered to be resident if at the time of their registration they have been domiciled in this state for at least one year, provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word domicile as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be claimed as a permanent abode.

DEPARTMENT OF STUDENT HEALTH

The School undertakes to supply medical and surgical care for its students through the Department of Student Health. This care includes the daily services rendered by a physician and a medical secretary in a well-equipped clinic, conveniently located in the Dental School. Also consultations, surgical procedures and hospitalization, judged to be necessary by the Department, are covered under liberal limitations, depending on length of hospitalization and special expenses incurred.

Students who need medical attention are expected to report at the office of the Department of Student Health. Under circumstances requiring home treatment, the students will be visited at their College residences.

It is not within the scope of the Department to provide medical care for conditions antedating each annual registration in the University; nor is it the

function of this service to treat chronic conditions contracted by students before admission or to extend treatment to acute conditions developing in the period between academic years or during authorized school vacations. The cost of orthopedic appliances, the correction of visual defects, the services of special nurses, and special medication must be paid for by the student. The School does not accept responsibility for illness or accident occurring away from the community, or for expenses incurred for hospitalization or medical services in institutions other than the University Hospital, or, in any case, for medical expense not authorized by the Department of Student Health.

Every new student is required to undergo a complete physical examination, which includes oral diagnosis. Any defects noted must be corrected within the first school year. The passing of this examination is a requirement for the final acceptance of any student.

Each matriculant must present, on the day of his enrollment, a statement from his *ophthalmologist* regarding the condition of his eyes, and where defects in vision exist he shall show evidence that corrections have been made.

If a student should enter the hospital during the academic year, the Department will arrange for the payment of part or all of the hospital expenses, depending on the length of stay and the special expenses incurred. This arrangement applies only to students admitted through the office of the School physician.

Prospective students are advised to have any known physical defects corrected before entering the School in order to prevent loss of time which later correction might involve.

SCHOLARSHIP AND LOAN FUNDS

A number of scholarship loans from various organizations and educational foundations are available to students in the School of Dentistry. These loans are offered on the basis of excellence in scholastic attainment and the need on the part of students for assistance in completing their course in dentistry. It has been the policy of the Faculty to recommend only students in the last two years for such privileges.

The Henry Strong Educational Foundation—From this fund, established under the will of General Henry Strong of Chicago, an annual allotment is made to the Baltimore College of Dental Surgery, Dental School, University of Maryland, for scholarship loans available for the use of young men and women students under the age of twenty-five. Recommendations for the privileges of these loans are limited to students in the Junior and Senior years. Only students who through stress of circumstances require financial aid and who have demonstrated excellence in educational progress are considered in making nominations to the secretary of this fund.

The Edward S. Gaylord Educational Endowment Fund—Under a provision of the will of the late Dr. Edward S. Gaylord, of New Haven, Connecticut, an amount approximating \$16,000 was left to the Baltimore College of Dental Surgery, Dental School, University of Maryland, the proceeds of which are to be devoted to aiding worthy young men in securing dental education.

The W. K. Kellogg Foundation—During World War II the Foundation recognized the burden that the accelerated course imposed upon many dental students

who under normal circumstances would earn money for their education by employment during the summer vacation. The Foundation granted to this School a fund to provide rotating loans to deserving dental students.

The Albert A. Harrington Fund—This fund was established in 1954 by the New Jersey Alumni Association in memory of Dr. Albert A. Harrington, a member of the Class of 1910. The fund is a source of valuable help in aiding students to solve their temporary financial problems.

The E. Benton Taylor Scholarship—One of the finest scholarships in the field of dental education, the E. Benton Taylor Scholarship was conceived and arranged by Mrs. Taylor and will be perpetuated by the Luther B. Benton Company of Baltimore. It was put into operation in 1954 and will be awarded annually to a Maryland student of each entering class, who will continue to receive its benefits during the four years of his dental school course.

DESCRIPTION OF COURSES

ANATOMY

GROSS ANATOMY

Professor Hahn, Associate Professor Thompson, Drs. Loveman and Sachs, and Mr. Sinnreich

This course consists of dissection and lectures, supplemented by frequent conferences, and practical demonstrations. Each student is required to dissect the lateral half of the human body. The osteology of a given region is studied at the time of the dissection of that region so that the value of learning this phase of anatomy may be better demonstrated.

The subject is taught with the purpose of emphasizing the principles of structure of the body, the knowledge of which is derived from a study of its development, its organs and tissues, and the action of its parts.

Arrangements can be made to accommodate qualified students and dentists interested in research or in making special dissections or topographical studies.

NEUROANATOMY

Professor Hahn, Associate Professor Thompson, Dr. Lindenberg and Mr. Sinnreich

Neuroanatomy is offered in the Freshman year following Gross Anatomy. The work consists of a study of the whole brain and spinal cord by gross dissections and microscopic methods. Function is taught with structure; correlation is made, whenever possible, with the student's work in the histology and physiology of the central nervous system.

COMPARATIVE TOOTH MORPHOLOGY

Associate Professor Thompson

The course treats the evolutionary development of dentition as a necessary factor in the study of human oral anatomy. It includes a comparative study of the teeth of the animal kingdom, both vertebrates and invertebrates, with a comparative study of the number, position and form of the teeth.

TOOTH MORPHOLOGY

Assistant Professor Edmond G. Vanden Bosche and Dr. Jagielski

This course is designed to teach the form and structure of the teeth, and includes a study of the nomenclature of surfaces, divisions and relations of the teeth. In the laboratory the student is trained in the carving of the various teeth and in the dissection of extracted teeth through their various dimensions.

The second part of the course includes a study of the supporting structures of the teeth and of the relation of the teeth to these structures. The periods of beginning calcification, eruption, complete calcification, and shedding of the deciduous teeth;

followed by the periods of beginning calcification, eruption, and complete calcification of the permanent teeth, are studied and correlated with the growth in size of the jaws and face.

BACTERIOLOGY

Professor Shay and Mr. James

The course in Bacteriology is given in the Sophomore year. It embraces lectures, demonstrations, recitations, and conferences, augmented by guided reading.

Practical and theoretical consideration is given to bacteria, both pathogenic and nonpathogenic, viruses, protozoa, and some of the yeasts and molds. Special attention is given to those organisms which cause lesions in and about the oral cavity, particularly primary focal infection about the teeth, tonsils, pharynx, nose, accessory sinuses, adenoids and naso-pharynx, and the types of systemic disease which result from the establishment of secondary foci.

Immunological and serological principles are studied, with special consideration given to antitoxins, antisera, bacterins, vaccines and antigens which cause hypersensitization.

Laboratory teaching includes the methods of staining and the preparation of media; cultural characteristics of bacteria; their reaction to disinfectants, antiseptics, germicides and various methods of sterilization; animal inoculation, preparation of sera, vaccines, etc.; various laboratory tests and reactions; a study of the antibiotics; and demonstrations of virus techniques.

BIOCHEMISTRY

Professor Vanden Bosche, Mr. Morris and Mr. Leonard

The course is given in the Freshman year. The prerequisite subjects are inorganic and organic chemistry. Additional training in analytical and physical chemistry is desirable.

Instruction is presented in the form of lectures, demonstrations and laboratory experience. The chemistry of living matter, its constituents and processes, forms the basis of the course. The detailed subject matter includes the chemistry of carbohydrates, fats, proteins, enzymes, vitamins, and hormones; the processes of respiration, digestion, metabolism, secretion and excretion are considered.

Instruction in qualitative and quantitative blood and urine examination is included. These procedures are given clinical application during the Junior and Senior years.

DENTAL HISTORY

Professor Foley

Dentistry occupies a prominent position in the present social structure

because of its important relationship to the general health of the individual and of the community. From its crude beginnings in ancient times the dental art has been improved down through the ages to the present time by various educative processes, and has gradually and firmly advanced in scientific quality and technological excellence. An appreciation of the true objectives of dentistry will be greatly enhanced by the practitioner's knowledge of its philosophy as revealed through an understanding of its development to its present high state of usefulness. A knowledge of the history of dentistry is a necessary part of the education of the modern dentist. Lectures in Dental History describe the beginnings of the art of dental practice among ancient civilizations, its advancement in relation to the development of the so-called medical sciences in the early civilizations, its struggle through the Middle Ages and, finally, its attainment of recognized professional status in modern times. Special attention will be given to the forces and stresses that have brought about the evolutionary progress from a primitive dental art to a scientific health service profession.

DENTAL MATERIALS

Professor Gaver; Associate Professors Ramsey and Oggensen; Dr. Watson

This course is designed to provide the Freshman student with a scientific background in the nomenclature, composition, physical properties, practical application, and proper manipulation of the important materials used in the practice of dentistry, excluding all drugs and medicinals.

The theoretical aspect of the course is presented by the instructors in the form of lectures, demonstrations, informal group discussions, and directed supplemental reading. From the practical standpoint, the student manipulates and tests the various materials in the laboratory, being guided by prepared project sheets.

At the termination of the course, the student will have developed an understanding of the following factors: the importance of scientific testing of a material before it is used by the profession at large; the realization of the fact that every material has its limitations, which can be compensated for only by intelligent application and manipulation; and an appreciation of the vast field of research open to those who wish to help improve the materials that are available at the present time.

DENTAL PROSTHESIS

Professor Gaver; Associate Professors Oggensen, Ramsey, Warner and Williamson; Drs. Gordon, Smith and Watson

This course is carried through four years of study and includes lectures, clinics, and demonstrations. It embraces lectures and technic work in the first and second years, and lectures and clinics in the third and fourth years.

The work of the first year is devoted to a study of materials used in denture construction. A series of lecture-demonstrations is given, explaining the properties and manipulation of all the materials used. Experiments and exercises are ar-

ranged to give the student practical knowledge of the materials demonstrated and are designed to impress the student with the importance of the essential fundamentals in all the various steps in full denture construction.

During the second year the instruction embraces a study of materials used in partial denture construction. Lecture-demonstrations, experiments, exercises, and technical demonstrations are given, using the same method of presentation followed in the first year.

The course in the third year includes a study of the practical application in the Infirmary of the fundamentals taught in the preceding years. Demonstrations are offered of the various technics of impression and bite-taking to provide the student with additional knowledge necessary for practical work in the Infirmary.

The last year is given to the application in the Infirmary of the fundamentals taught in the previous year, particular attention being given to a standard method of denture construction by the clinical instructors to equip the student with a basic technic. The didactic course of this year includes all the various methods employed in advanced prosthesis.

FIRST AID

Dr. Ogden

This course is offered in the Sophomore year for the purpose of acquainting the student with the basic principles of First Aid. Instruction consists of lectures combined with practical demonstrations.

FIXED PARTIAL PROSTHESIS

*Professor Nuttall; Associate Professors Dosh, McLean-Lu and Oggesen;
Drs. M. M. Graham and Steele*

Instruction includes lecture and laboratory courses during the Sophomore and Junior years which embrace the teaching of the principles involved and the procedures necessary in abutment preparations, the construction of fundamental retainers and the assemblage of fixed partial dentures. The technics include the construction of pontics, wax manipulation, pattern carving, investing and casting.

The didactic work in the Junior year includes a study of the biological factors, the mechanical requirements and the indications and contraindications of fixed partial prosthesis. Instruction is given in the history and development of porcelain and methyl methacrylate as restorative materials. These materials are employed in the construction of complete jacket crowns, dowel crowns, and staining and glazing technic.

During the Junior and Senior years excellent clinical opportunities are afforded the student to fulfill the practical requirements.

HISTOLOGY AND EMBRYOLOGY

Professor McCrea and Associate Professor Provenza

Histology, general and special dental, is given during the Freshman year and is presented by lectures and laboratory instruction. It embraces the thorough study of the cells, elementary tissues, and the organs of the various systems of the body. Special dental histology includes the gross and microscopic study of the oral cavity, teeth and their investing tissues. At all times correlations are made with the other phases of the curriculum. The use of fresh tissues in the laboratory is included to associate further the structure with function.

The course in Embryology is given by means of lectures and laboratory classes. It covers the fundamentals of the development of the human body, particular emphasis being given to the head and facial regions, oral cavity and teeth with their surrounding structures. At all times emphasis is placed on the association of embryology to histology and anatomy.

Students are trained in the proper use of the microscope and its accessories, and in staining, mounting and properly manipulating sections made for microscopic study. All sections are prepared for class.

OPERATIVE DENTISTRY

Professor Randolph; Associate Professors Medina and Scherr; Assistant Professors H. M. Clement, Louie and Edmond G. Vanden Bosche; Drs. Beaven, Bloom and C. J. Gaver

Operative Dentistry is the treatment of diseases and injuries of the teeth to restore the normal tooth forms and provide for the better health and function of the oral mechanism. The course of instruction is given during the Sophomore, Junior and Senior years.

In the Sophomore year, the student is trained in the technical procedures in instrumentation, cavity preparation and manipulation of restorative materials. The variables which must be observed in preparing cavities to receive different types of filling materials are carefully outlined. These modifications are carried out by the student in a series of cavity preparations made in composition teeth, arranged in normal proximal relation on forms especially designed for the purpose. These fundamental principles are then applied to extracted teeth in order that the student might study the characteristic resistance of tooth structure to instrumentation. The management of gold foil, amalgam, gold inlay, silicate, acrylic, and cement is given in detail and the student restores the prepared cavities with these materials. This course of instruction consists of twenty-six lectures and forty-eight laboratory periods. Demonstration lectures, visual aids and conferences are used to augment the student's training.

Operative Dentistry as taught in the Junior and Senior years is a continuing development of the principles presented in the Sophomore year. The student is trained to render a satisfactory Oral Health service by restoring pathologic teeth to their normal form and function and to evaluate new pro-

cedures suggested by experience and research as improvements in operative practice. These objectives are pursued through a combination of didactic and clinical instruction.

The didactic instruction includes twenty-four one-hour lectures offered during the Junior year, and twenty-four lectures during the Senior year. The student is instructed in the treatment of the pathology of the hard tissues of the teeth; he is taught how to apply the principles of idealism to unorthodox conditions; and he is directed in the professional treatment of his patients in terms of what they expect of him and what he can expect of them. A certain amount of time is devoted to conferences which provide the student an opportunity to bring his individual problems to the instructor for intimate discussion.

Clinical instruction includes the practical application of the principles underlying rational operative procedures. During the Junior and the Senior years the student treats the dental pathologies of several cases under the supervision of the Operative Instruction Staff.

ORAL DIAGNOSIS AND TREATMENT PLANNING

Professor Biddix; Associate Professor Golton; Drs. Bryant, W. L. Graham and Lebo

The Department of Oral Diagnosis emphasizes the study of fundamental principles and procedures in the diagnosis of oral and related diseases. The Junior and Senior students, in seminar groups, receive instruction by intimate clinical observation and discussion of interesting cases. An intelligent and scientific approach to each case is the prime teaching principle of this department.

Abundant clinic material is available so that the student may observe every type of disease to which the oral cavity is susceptible. Emphasis is placed upon the fact that one must approach a study of the oral cavity through an understanding of its relationship to other parts of the body. To this end the department is singularly fortunate in having easy access for consultation with the medical service of the University Hospital.

Treatment planning is given the great importance it deserves. Students are permitted to give their impressions of plans of treatment, which are carefully discussed in this department. Consultations with other departments are always available so that the practice of thorough diagnosis is developed.

Much time is given to the study of the relationship of mouth infection to systemic disease. The theory of local infection is emphasized and properly evaluated so that the student may interpret clinical, roentgenologic, and laboratory findings in an intelligent and competent manner. A large collection of color slides serves to make lectures in oral diagnosis interesting and instructive.

ORAL MEDICINE

ENDODONTICS

Assistant Professors Biddington and Abramson

This course consists of lectures, clinics and technic laboratory instruction.

The lecture and laboratory procedures are given in the second semester of the Sophomore year. The lecture phase presents the indications and contraindications for maintaining pulp-involved teeth and the various methods which may be used in performing all the necessary steps in root-canal therapy.

The laboratory phase is designed to acquaint the student with the actual technic of performing root-canal therapy. This he accomplishes by carrying out the necessary procedures on extracted teeth.

During the Junior and Senior years, the student applies the fundamentals he has learned previously by performing root-canal therapy on clinical cases, under supervision of the Endodontics Staff.

ORAL HYGIENE

Assistant Professors Biddington and Eskow; Dr. T. F. Clement

Oral Hygiene is taught by a combined lecture and laboratory course.

Preventive dentistry is stressed in lectures. Emphasis is placed on the functions and limitations of dentifrices and mouth washes, toothbrushes, and brushing methods; the role of diet in dental health and development; and the relation of dental foci to systemic diseases. Causes, results, treatment and eradication of unhygienic conditions of the oral cavity are fully considered. Demonstrations are given in the prophylactic treatment and in the home care of the mouth, and in the methods of brushing teeth.

The student is taught in laboratory the fundamental use of scalers upon special mannikins. By progressive exercises and drills he is carried through the basic principles of good operating procedure and is taught the methods of a thorough prophylactic treatment. The class is divided into two sections, one as operators, the other as patients, to perform the actual clinical prophylactic treatment. The sections are then alternated.

PERIODONTICS

Assistant Professors Biddington and Eskow; Dr. T. F. Clement

The lecture course presents the etiology, clinical symptoms, diagnosis, prognosis, and methods of treatment of the various forms of periodontal disease, lesions of the lips, cheeks and tongue, and other diseases of the oral cavity which do not require surgery. The recognition of periodontal disease in its incipient forms and the importance of early treatment are stressed. The various methods of treatment are considered and evaluated.

The lectures are well illustrated with color slides and moving pictures. Demonstrations, using patients, are correlated with the lecture course to show conditions of actual practice.

Infirmity practice is required of both Junior and Senior students. Individual cases are managed according to systematized procedure. Diagnosis is based on radiographs, clinical signs and symptoms, casts, history, and laboratory findings.

ORAL ROENTGENOLOGY

Associate Professor Dabrowski and Dr. Gaffney

The advances made in dental science and in the art of practice have established Roentgenology as one of the most important departments of dental education. The course offered is based on the universal utility of the x-ray in oral diagnosis and is consistent with the modern concept of preventive dentistry.

In the lectures are included a study of the physical principles involved in the production of Roentgen rays, a thorough discussion of their nature as to properties and effects, and the background of information necessary to their practical application.

In the clinic, students of the Junior and Senior years are in constant association with the routine practical use of the x-ray. They are required to master thoroughly the fundamental scientific principles thereof and to acquire a reasonable degree of technical skill, under supervision. It is the design of the course to equip students to take, process, and interpret all types of intraoral and extraoral films. Abundant clinical material is available as the result of a policy calling for the routine use of the x-ray in all oral diagnoses.

ORAL SURGERY

ORAL SURGERY

Professors Dorsey, Robinson and Yeager; Associate Professor Cappuccio; Assistant Professor Siwinski; Drs. Bushey, Flor, Heldrich, Hyson, Jarvis and Pozega

Oral Surgery is given in the Junior and Senior years and consists of lectures, clinical assignments, and practical demonstrations on the etiology, pathology, diagnosis and treatment of all classes of tumors, infections, deformities, anomalies, impacted teeth, fractures and minor oral surgical conditions associated with the practice of dentistry. Special group hospital clinics, demonstrations and ward rounds are given to familiarize the student with abnormal conditions incident to the field of his future operations and to train him thoroughly in the diagnosis of benign and malignant tumors.

Weekly seminars are held in the hospital and each Senior student is required to prepare and present an oral surgery case report according to the requirements of The American Board of Oral Surgery.

Instruction is given in the classification of teeth for extraction, in the removal of teeth, and in the pre- and post-operative treatment of patients, both ambulatory and hospitalized.

Students are required to produce anesthesia and to extract teeth under the direction and supervision of an instructor.

Clinics are held to demonstrate the removal of impacted and imbedded teeth and cysts, and the treatment of fractures and other oral conditions requiring surgery. Abundant clinical material and adequate facilities enable the student to receive exceptional training and practice.

ANESTHETICS

Professors Dorsey and Dodd; Associate Professor Cappuccio; Dr. Inman

Local anesthesia is taught both in principle and in practice. All types of intraoral, extraoral, conduction and infiltration injections; the anatomical relationship of muscles and nerves; the theory of action of anesthetic agents, the dangers involved, and toxic manifestations and their treatment, are taught in lectures and clinics. Demonstrations are given in conduction and infiltration technics, and students are required to give similar injections under direct supervision of the instructor.

General anesthesia is taught in both lecture and clinic, including the action of the anesthetic agents, methods of administration, indications and contraindications, dangers and the treatment of toxic manifestations. Demonstrations are given in the preparation of the patient, the administration of all general anesthetics (inhalant, rectal, spinal, and intravenous), and the technic for oral operations, with clinics being held in the Infirmary and in the Hospital.

ORAL AND WRITTEN EXPRESSION

Professor Foley

A formal course of lectures is given in the second year. Many aspects of the instruction are given practical application in the third and fourth years. The course has many purposes, all of them contributing to the training of the students for effective participation in the extra-practice activities of the profession. Particular attention is given to instruction in the functioning of the agencies of communication in dentistry: the dental societies and the dental periodicals. The practical phases of the course include a thorough study of the preparation and uses of oral and written composition by the dental student and the dentist; the use of libraries; the compilation of bibliographies; the collection, the organization, and the use of information; the management of dental meetings; the oral presentation of papers; and professional correspondence.

ORTHODONTICS

Professor Preis; Assistant Professors Shehan and Swinchart; Drs. Cullen and Schaeffer

The Orthodontics course consists of lectures, clinical observations, comprehensive diagnosis and therapy. The subject matter includes the history of orthodontics and the study of growth and development, the evolution of human dental occlusion, forces of occlusion, etiology of malocclusion, aberrations of the maxilla and mandible which affect occlusion, and tissue changes incident to tooth movement.

Methods of orthodontic therapy are explained and demonstrated; students are provided the opportunity for assisting during the treatment of clinical patients.

Lectures are given during both semesters of the Junior year. The Seniors are assigned to the orthodontic clinic.

PATHOLOGY

GENERAL PATHOLOGY

Professor Aisenberg, Associate Professor Weinberg, Drs. A. D. Aisenberg, Flor, Granruth and Guerin

General Pathology is taught in the Sophomore year by means of lectures, demonstrations, quizzes and laboratory work.

The general principles of disease processes and tissue reactions, both gross and microscopic, are taught with the objectives of training the student to recognize and be familiar with the abnormal and of creating a foundation for further study in the allied sciences.

Emphasis is placed upon those diseases in the treatment of which medical-dental relationships are to be encountered.

ORAL PATHOLOGY

Professor Aisenberg and Drs. A. D. Aisenberg, Flor and Granruth

Oral Pathology is taught in the first semester of the Junior year. It includes a study of the etiology, the gross and microscopic manifestations, and the correlation with the treatment of diseases of the teeth and their investing structures: namely, pathologic dentition, dental anomalies, periodontal diseases, tissue changes in orthodontic movement of teeth, calcific deposits, dental caries, pulpal diseases, focal infection, oral manifestations of systemic diseases, and benign and malignant lesions in and about the oral cavity.

Instruction is presented by lectures, demonstrations, lantern slides, prepared slides, microscopic study of macroscopic specimens, models and mouldages.

PEDODONTICS

Associate Professors Sanders and Scherr; Dr. Ehrlich

The course is designed to prepare the student to become competent in the practice of modern preventive and restorative dental services for the young patient. It consists of lectures, clinics and technic laboratory instruction in all phases of dentistry for children.

Attention is given to the management of the child patient with necessary modifications for behavior problems. Instruction is offered in the fundamentals required in the preparation of all cavities in the deciduous teeth for the proper reception of different filling materials. Methods and procedures indicated in the restoration of broken and fractured incisors in children are demonstrated in technic and utilized in the clinic. The indications and contraindications for pulpal therapy are evaluated for the purpose of rational tooth conservation. The problem of premature loss of the deciduous teeth is studied and the construction of space maintainers is demonstrated.

Preventive dentistry is stressed. Prophylaxis, toothbrushing instruction and the routine use of radiographs are used for the introduction of the child patient to clinic procedures and for encouraging the student to establish complete treatment

plans. The technics of caries susceptibility tests and their practical use are included, as well as the clinical approach to rational dietary studies.

The Department endeavors to develop in the dental student a sincere interest in guiding the child patient through the period of the mixed dentition. A separate clinic equipped with child-size chairs and supervised by a special pedodontic staff provides adequate opportunity for clinical application of the methods presented in the lectures.

PHARMACOLOGY

PHARMACOLOGY AND THERAPEUTICS

Professor Dobbs; Drs. Rapoport and Ross

The course is designed to provide a general survey of pharmacology, affording the students the necessary knowledge for the practice of rational therapeutics.

The course is taught throughout the Junior year by lectures, laboratories and demonstrations. The first semester consists of sixteen hours of didactic work including instruction in pharmaceutical chemistry, pharmacy, prescription writing, and the pharmacodynamics of the local-acting drugs.

The second semester consists of thirty-two hours of didactic and forty-eight hours of laboratory instruction. The subject material consists of the pharmacodynamics of the systemic-acting drugs.

In therapeutics the students are instructed in the use of drugs for the prevention, treatment, and correction of general and oral diseases.

NUTRITIONAL THERAPEUTICS

Professor Dobbs

This course presented in the Senior year consists of sixteen hours of lectures and demonstrations devoted to the principles and practices of nutritional therapeutics. The presentation includes a study of the dietary requirements of essential food substances in health and disease. The vitamin and mineral deficiency states with their pathology and symptomatology are presented with suggestions for dietary and drug therapy. Metabolic diseases are discussed, and their effects on the nutritional states are considered. Diets are planned for patients with various nutritional problems, such as those resulting from loss of teeth, the use of new appliances, dental caries, stomatitis, cellulitis, osteomyelitis, and bone fractures.

A project study is made by each student which includes analyses of his basal metabolic requirement, his total energy requirement, and his dietary intake in relation to his daily needs.

ORAL THERAPEUTICS

Professor Dobbs

Oral therapeutics is presented in the Senior year and consists of sixteen hours of lectures and demonstrations. The course is designed to acquaint the

students with the practical applications of pharmacology in the treatment of dental and oral diseases. Particular emphasis is given to the newer drugs and the more recent advances in therapeutics. Patients from the dental clinic and hospital will be used for demonstrations whenever possible.

PHYSIOLOGY

Professor Oster and Assistant Professors Pollack and Shipley

The purpose of the course in Physiology is to equip the student of dentistry with a knowledge of the fundamental physiological functions of the human body. The basic physical and chemical properties and processes in living tissues and organisms are analyzed.

The material of the lectures is divided into sections concerned with nerve and muscle functions, the central nervous system and its integrative role, respiration, digestion, metabolism, circulation, humoral control of function, water balance, kidney function, and the special senses.

Laboratory work is given in the first semester. Simple experiments performed on frogs and turtles are followed by more advanced work on cats and dogs and on the students themselves. Principles illustrating the application of physiology to dentistry and medicine are given special attention.

Throughout the course, emphasis is placed upon the experimental and objective approach to problems as the basis of the scientific method. Effort is made to present modern physiological developments and evaluate them in terms of their clinical significance.

PRACTICE MANAGEMENT

PROFESSIONAL ETHICS

Dr. Lovett

The course in Professional Ethics includes a series of lectures on the history of general ethics and its basic teachings, which is followed by an interpretation of philosophical principles in terms of a code of professional ethics and its application to the present-day needs of the dental profession. Emphasis is placed upon the importance of right conduct in the dentist's relations with the public, the dental profession, the patient, the physician, the dental specialist and the dentist in general practice.

JURISPRUDENCE

Mr. Pumphian

The special aim in the course in Jurisprudence is to ground the student in the fundamentals of law as they relate themselves to the dentist and his patient. The rights and limitations of each are pointed out through lecture work and class conference. A series of practical cases in which suits have been threatened or entered by patients against the dentist will be reviewed in the light of trial table outcome or basis on which compromise adjustments have been made.

PRACTICE ADMINISTRATION

Professor Biddix

The chief objective of this course is to prepare the students to assume intelligently the social, economic and professional responsibilities of dental practice. The training in practice management is a continuous growth with the student during his entire clinical experience.

In preparation for the course the students are given introductory lectures and demonstrations relative to the conduct of practice at the beginning of their Junior year when they come into the clinics for formal practice training. The training they receive in handling patients, keeping records, etc., serves as an introduction to the problems they will experience in practice.

The formal Senior lectures stress the selection of the proper office location and the purchase of office equipment, the manner of reception and handling of patients, the basis of fixing fees, the methods of collecting accounts, the choice of various types of insurance and of sound investments. A comprehensive bookkeeping system for a dental office is fully outlined and explained.

PREVENTIVE AND PUBLIC HEALTH DENTISTRY

Dr. Leonard

The objectives of this course are to emphasize those measures other than remedial operations that will tend to minimize the occurrence or the extension of oral pathology, and to outline the status of dentistry in the field of general public health. The relationships of dentistry with other phases of public health are discussed, as are the problems affecting the administration of dental health programs. Special effort is made to demonstrate methods and materials suitable for use in dental health education programs.

PRINCIPLES OF MEDICINE

Associate Professor McLean and Dr. Kuehn

Principles of Medicine is taught by lecture, visual education, and clinical demonstrations. The course is given to the Junior and Senior classes for one hour a week during the entire year. The course is supplemented by comprehensive lectures in Physical Diagnosis given to the Senior class during the second semester.

The purpose of the course is to give the dental student a general understanding of medical problems, especially of diagnostic and therapeutic procedures, and to show the close relationship between oral diseases and general systemic disturbances.

In the Junior year, the course is largely didactic, and the signs and symptoms of the more common diseases are discussed. In the Senior year, importance is

placed on the close application of medical and dental knowledge, with the emphasis on organic and psychosomatic diseases; these diseases are presented at medical clinics and seminars in the University Hospital.

Throughout the year small groups of students are taken into the Hospital for medical ward rounds and demonstrations.

This department cooperates with the instruction procedures of the oral diagnosis clinic by discussing and demonstrating the medical aspects of cases presented.

Available clinical material is used and free discussion is encouraged, in order to correlate the art of practice in history taking, diagnosis, laboratory examinations, and the modern concepts of treatment.

Guest lecturers present specific scientific papers relating to medical-dental topics.

VISUAL AIDS IN TEACHING

Associate Professor Schueler; Mrs. A. J. Proutt, Miss Sakalusky and Mr. Taylor

Visual aids are essential to instruction in all the courses of the dental curriculum. From his first class to his graduation day the student's learning is assisted by the use of visual materials.

Through photography the School retains for teaching purposes many interesting cases that appear in the clinics, preserves evidence of unusual pathological cases, and records anatomical anomalies, facial disharmonies and malocclusions of the teeth. In addition the student, through his contacts with photographic uses, becomes acquainted with the value of photography in clinical practice. Undergraduates are advised as to the use of visual aids in the preparation of lectures and theses, the arrangement and co-ordination of materials, and the organization and maintenance of records and histories.

Moulage and art are used to supplement the photographic services where applicable. Drawings of anatomical, pathological, surgical and operative cases are used to teach the student detailed technics. In moulage, rubber master molds are made of gross and embryological specimens and from these are cast plaster, rubber, and wax positives. Through the use of agar molds, facial and oral masks are made of unusual and interesting clinical subjects. This work is particularly valuable in courses in which it is not possible to use actual specimens for instructional purposes.

By the combination and correlation of these various types of visual aids, all departments in the School are provided with an unlimited supply of valuable and often irreplaceable materials for lectures, clinics and exhibits.

SPECIAL COURSES

SUMMER COURSES

As the need arises, summer courses are offered in any of the subjects included in the regular curriculum. For details concerning each course consult pages 24-37 in this catalog. A charge of \$10.00 for each semester hour credit is made for these courses.

GRADUATE COURSES

Graduate courses are offered by the departments of Anatomy, Histology and Embryology, Bacteriology, Biochemistry, Physiology, Oral Pathology and Oral Surgery. For descriptions of these courses, consult the catalogue of the University of Maryland Graduate School. The tuition fees for these courses are the same as those at College Park.

POSTGRADUATE COURSES

Postgraduate courses are offered to qualified dental graduates. These courses are designed to provide opportunities for study in special fields on a refresher level, and are arranged so that particular emphasis is placed on clinical practices.

Anatomy of the Head and Neck

This course is designed to review certain principles of Anatomy and to furnish the student opportunities to relate these principles to clinical practice. Instruction is presented in the form of illustrated lectures, seminars, and laboratory dissection. One semester, full time. Tuition, \$200.00. Maximum expense for books, supplies, and equipment, \$45.00.

Oral Pathology

The course in Oral Pathology is presented with the objective of correlating a knowledge of histopathology with the various aspects of clinical practice. The physiology of the periodontal attachment and the pathology of the dental pulp, the periodontium, the hard tissues of the teeth, odontogenic cysts and tumors, and cancer in and about the oral cavity are stressed. Studies of surgical and biopsy specimens are also emphasized. Opportunity for supervised research in areas of particular interest to the student will be available. One year, full time. Tuition, \$550.00. Maximum expense for books, supplies, and equipment, \$75.00, which includes microscope fee of \$25.00.

Oral Surgery

The course in Oral Surgery is organized to train the dentist in advanced surgical procedures of the oral cavity and the associated parts. Although primarily designed for the general practitioner, the course can be used as credit toward specialization in Oral Surgery. One year, full time. Tuition, \$550.00. Maximum expense for books, supplies, and equipment, \$75.00.

Periodontia

The course in Periodontia consists of a review of the etiology, pathology, clinical symptoms, diagnosis and methods of treatment of the various types of periodontal disease. Instruction is presented by means of lectures, seminars and clinical demonstration. One semester, full time. Tuition, \$200.00. Maximum expense for books, supplies, and equipment, \$75.00.

Prosthesis

Instruction will be given in the fundamental principles and factors involved in complete denture prosthesis, the general problems in diagnosis and treatment planning, and the procedures of constructing partial and complete dentures.

Ample opportunity will be provided for the application of the basic principles and procedures of clinical practice. One semester, full time. Tuition, \$200.00. Maximum expense for books, supplies, and equipment, \$300.00.

Visual Aids

The basic principles and practices of Visual Aids are presented by lecture, demonstration and laboratory technics. Practical photography and moulage are featured, with instruction in department organization and exhibition arrangement. Four weeks, full time. Tuition \$150.00.

Occasional Part-Time Courses

The fees charged part-time students who may be enrolled in any of the special courses are prorated on a basis of the full-time charge of \$550.00, with a minimum charge of \$100.00 for any one course.

THE GORGAS ODONTOLOGICAL SOCIETY

The Gorgas Odontological Society was organized in 1916 as an honorary student dental society with scholarship as a basis for admission. The Society was named after Dr. Ferdinand J. S. Gorgas, a pioneer in dental education, a teacher of many years' experience, and during his life a great contributor to dental literature. It was with the idea of perpetuating his name that the Society adopted it.

To be eligible for membership a student must be in the first 30 per cent of his class. The selection of this 30 per cent shall be based on the weighted percentage average system as outlined in the school regulations. The meetings, held once each month, are addressed by prominent dental and medical men, an effort being made to obtain speakers not connected with the University. The members have an opportunity, even while students, to hear men associated with other educational institutions.

OMICRON KAPPA UPSILON

Phi Chapter of Omicron Kappa Upsilon honorary dental society was chartered at the Baltimore College of Dental Surgery, Dental School, University of Maryland during the session of 1928-29. Membership in the society is awarded to a number not exceeding 12 per cent of the graduating class. This honor is conferred upon students who through their professional course of study creditably fulfill all obligations as students, and whose conduct, earnestness, evidence of good character and high scholarship recommend them to election.

NOTE: Inquiries concerning these courses should be addressed to the Dean of the Dental School, University of Maryland, Baltimore 1, Maryland.

The following graduates of the 1955 Class were elected to membership:

VICTOR LEE ANDREWS, JR.	RAYMOND CHARLES DILZER
THOMAS EARL BLUMENBACH	RICHARD WARREN HUNGERFORD
RICHARD EVERETT BOLYARD	EDWARD JAY MEREDITH, JR.
LAWRENCE IRA BRANT	PETER R. REINER
WILLIAM PACKER BRODIE	HOWARD S. TARABOUR
WILLIAM JOHN CURTIS	HANS RICHARD WILHELMSSEN

ALUMNI ASSOCIATION

The first annual meeting of the Society of the Alumni of the Baltimore College of Dental Surgery was held in Baltimore, March 1, 1849. This organization has continued in existence to the present, its name having been changed to The National Alumni Association of the Baltimore College of Dental Surgery, Dental School, University of Maryland.

The officers of the Alumni Association for 1955-1956 are as follows:

LAWRENCE W. BIMESTEFER <i>President</i> 1 Kinship Road Baltimore 22, Maryland	GERARD A. DEVLIN <i>President-Elect</i> 121 Prospect Street Westfield, New Jersey
DANIEL E. SHEHAN <i>Vice-President</i> Medical Arts Building Baltimore 1, Maryland	
JOSEPH M. TIGHE <i>Secretary</i> 6601 York Road Baltimore 12, Maryland	HOWARD VAN NATTA <i>Treasurer</i> Medical Arts Building Baltimore 1, Maryland
ETHELBERT LOVETT <i>Historian</i> Medical Arts Building Baltimore 1, Maryland	GERSON A. FREEDMAN <i>Editor</i> 5901 Park Heights Avenue Baltimore 15, Maryland

Representatives to University Alumni Council

LAWRENCE W. BIMESTEFER, 1956 1 Kinship Road Baltimore 22, Maryland	GERARD A. DEVLIN, 1957 121 Prospect Street Westfield, New Jersey
HARRY LEVIN, 1958 3429 Park Heights Avenue Baltimore 15, Maryland	

UNIVERSITY OF MARYLAND

Executive Council

MAX K. BAKLOR, 1958

*Chairman*Medical Arts Building
Baltimore 1, Maryland

BENJAMIN A. BROWN, 1956

2701 Pacific Avenue
Atlantic City, New Jersey

EDWIN G. GAIL, 1957

3700 N. Charles Street
Baltimore 18, Maryland

EUGENE L. PESSAGNO, JR., 1958

Medical Arts Building
Baltimore 1, Maryland

JAMES L. TRONE, SR., 1956

127 E. Main Street
Elkton, Maryland

HOWARD B. WOOD, 1957

19 S. Liberty Street
Cumberland, Maryland

JOHN T. STANG, 1958

1007 Frederick Avenue
Baltimore 28, Maryland

Trustees for National Alumni Fund

TRUSTEES EX-OFFICIO

LAWRENCE W. BIMESTEFER, *President*GERARD A. DEVLIN, *President-Elect*ARTHUR I. BELL, *Secretary-Treasurer*MAX K. BAKLOR, *Chairman of Executive Council*MYRON S. AISENBERG, *Dean*

HARRY LEVIN, 1956

3429 Park Heights Avenue
Baltimore 15, Maryland

ELMER F. COREY, 1957

1901 E. 31st Street
Baltimore 18, Maryland

AUGUSTINE L. CAVALLARO, 1958

291 Whitney Avenue
New Haven 11, Connecticut

MICHAEL B. MESSORE, 1956

807 Union Trust Building
Providence, Rhode Island

MEYER EGGNATZ, 1957

420 Lincoln Road
Miami Beach, Florida

IRVIN B. GOLBORO, 1958

143 E. North Avenue
Baltimore 2, Maryland

THE UNIVERSITY OF MARYLAND SCHOOL OF LAW

OFFICERS OF ADMINISTRATION

WILSON H. ELKINS, M.A., Ph.D., LL.D., *President of the University*

ROGER HOWELL, LL.B., Ph.D., *Dean*

BRIDGEWATER M. ARNOLD, LL.B., *Assistant Dean*

G. WATSON ALGIRE, M.S., *Director of Admissions and Registrations*

THE FACULTY OF LAW (1955-56)

- BRIDGEWATER M. ARNOLD Assistant Dean and Professor of Law
A.B. (1923), Princeton University; LL.B. (1931), University of Maryland.
- LEWIS D. ASPER.....Assistant Professor of Law
A.B. (1943), University of Minnesota; LL.B. (1951), Columbia University.
- J. DEEMS BARNARD.....Supervisor, Legal Aid Clinic
LL.B. (1941), University of Maryland.
- WILLIAM P. CUNNINGHAM.....Assistant Professor of Law
A.B. (1944), LL.B. (1948), Harvard University.
- L. WHITING FARINHOLT, JR. Professor of Law
A.B. (1932), Johns Hopkins University; LL.B. (1940), University of Maryland; LL.M. (1947), Harvard University.
- EUGENE M. FEINBLATT.....Lecturer
A.E. (1940), LL.B. (1942), University of Virginia.
- HON. ELI FRANK Professor Emeritus
A.B. (1894), Johns Hopkins University; LL.B. (1896), University of Maryland.
- J. HAROLD GRADY Lecturer
A.B. (1938), Loyola College; LL.B. (1942), University of Maryland.
- GEORGE GUMP Lecturer
A.B. (1930), Johns Hopkins University; LL.B. (1933), University of Maryland.
- JOHN O. HERRMANN.....Director of Practice Court
LL.B. (1940), University of Maryland.
- ROGER HOWELL Dean and Professor of Law
A.B. (1914), Ph.D. (1917), Johns Hopkins University; LL.B. (1917), University of Maryland.
- FREDERICK WILLIAM INVERNIZZI.....Lecturer
A.B. (1932), LL.B. (1935), University of Maryland.
- LAURENCE M. JONES Professor of Law
A.B. (1930), J.D. (1932), State University of Iowa; LL.M. (1933), S.J.D. (1934), Harvard University.
- JOSEPH O. KAISER.....Lecturer
A.B. (1933), Johns Hopkins University; LL.B. (1936), University of Maryland.
- JAMES S. MORROW.....Lecturer
A.B. (1937), Johns Hopkins University; LL.B. (1940), Harvard University.

- WILLIAM J. O'DONNELL.....Lecturer
A.B. (1937), Loyola College; LL.B. (1941), University of Maryland.
- NORMAN P. RAMSEY.....Lecturer
LL.B. (1947), University of Maryland.
- G. KENNETH REIBLICH Professor of Law
A.B. (1925), Ph.D. (1928), Johns Hopkins University; J.D. (1929), New York University; LL.M. (1937), Columbia University.
- RUSSELL R. RENO Professor of Law
A.B. (1931), LL.B. (1927), University of Illinois; LL.M. (1940), Columbia University.
- EDWIN G. W. RUGE Professor Emeritus
A.B. (1912), Yale University; LL.B. (1915), Harvard University.
- *JOHN S. STRAHORN, JR.....Professor of Law
A.B. (1922), St. John's College; LL.B. (1925), Washington and Lee University; S.J.D. (1926), Harvard University; J.S.D. (1931), Yale University.
- HON. R. DORSEY WATKINS.....Lecturer
A.B. (1922), Ph.D. (1925), Johns Hopkins University; LL.B. (1925), University of Maryland.

- GERTRUDE M. ANDERTON Secretary
- ANNE C. BAGBY Law Librarian
A.B. (1922), Goucher College; B.L.S. (1927), Pratt Institute School of Library Science.
- EDWIN W. LOWE Research Associate and Editorial Secretary,
Maryland Law Review
A.B. (1929), St. John's College; LL.B. (1935), University of Maryland.
- NETTIE G. ABRAHAMS Stenographer
- SUZANNE E. PEREGOY.....Typist

*Deceased, November 14, 1955.

SCHOOL OF LAW

Introductory Statement

The Law School of the University of Maryland is rated as an "Approved School" by the American Bar Association. It is also a member of the Association of American Law Schools, an organization whose purpose is the advancement of legal education, membership in which is dependent upon meeting and maintaining certain standards as to entrance requirements, faculty, library and curriculum.

It is the only school in Maryland which has been so recognized and which offers what is regarded by the bodies named as proper preparation for the practice of law or whose standards of admission and instruction are those recommended by them. In 41 jurisdictions, graduates of schools not substantially complying with those standards are not eligible to take the bar examinations; and in a substantial number of jurisdictions, recognition is now refused to law study in a school not fully approved by the American Bar Association.

The American Bar Association standards are set forth in the following resolutions, adopted in 1921, with the exception of 1 (f), which was adopted in 1938:

"(1) The American Bar Association is of the opinion that every candidate for admission to the Bar should give evidence of graduation from a law school complying with the following standards:

(a) It shall require as a condition of admission at least two years of study in a college.

(b) It shall require its students to pursue a course of three years' duration if they devote substantially all of their working time to their studies, and a longer course, equivalent to the number of working hours, if they devote only part of their working time to their studies.

(c) It shall provide an adequate library available for the use of the students.

(d) It shall have among its teachers a sufficient number giving their entire time to the school to insure actual personal acquaintance with the whole student body.

(e) It shall not be operated as a commercial enterprise and the compensation of any officer or member of its teaching staff shall not depend on the number of students or on the fees received.

(f) It shall be a school which in the judgment of the Council on Legal Education and Admissions to the Bar possesses reasonably adequate facilities and maintains a sound educational policy; provided, however, that any decision of the Council in these respects shall be subject to review by the House of Delegates on the petition of any school adversely affected.

"(2) The American Bar Association is of the opinion that graduation from a law school should not confer the right of admission to the Bar, and that every candidate should be subjected to an examination by public authority to determine his fitness.

"(3) The Council on Legal Education and Admission to the Bar is directed to publish from time to time the names of those law schools which comply with the above standards and those which do not, and to make such publications available so far as possible to intending law students."

The policy set forth in these resolutions has been consistently and vigorously adhered to in subsequent meetings of the American Bar Association. *The minimum admission requirement stated in 1 (a) was increased in 1950 to three years of college study, beginning in September, 1952.*

The standards of the Association of American Law Schools are substantially the same, being somewhat more exacting in some instances.

HISTORICAL SKETCH

The General Assembly of Maryland in 1812 authorized the College of Medicine of Maryland, founded in 1807, "to constitute, appoint and annex to itself three other colleges or faculties, viz., the Faculty of Divinity, the Faculty of Law, and the Faculty of Arts and Sciences," and declared that "the four colleges or faculties thus united should be constituted an University by the name and under the title of the University of Maryland." In pursuance of this authority the University was organized in 1813, and is thus one of the oldest chartered universities in America.

The first faculty of law was chosen in 1813, when David Hoffman was elected Professor of law. He published in 1817 "A Course of Legal Study Addressed to Students and the Profession Generally," which Justice Story in an article in the *North American Review* pronounced to be "by far the most perfect system for the study of law which has ever been offered to the public," and which recommended a course of study so comprehensive as to require for its completion six or seven years. Regular instruction in law was begun in 1823, but was suspended in 1836 for lack of proper pecuniary support. Hoffman's ideals of legal education were far in advance of his times and in consequence there were but few students able or willing to spend the time required by his course. In 1869 the Law School was reorganized, and in 1870 regular instruction therein was resumed. Its graduates now number more than thirty-five hundred, and include a large proportion of the past and present leaders of the bench and bar in the State, as well as many who have attained prominence in the profession elsewhere.

Two other schools, the Baltimore Law School and the Baltimore University of Law, were organized under charters granted by the State of Maryland. These two schools were subsequently consolidated under the name of the Baltimore Law School in 1911 and in 1913 the Baltimore

Law School was in turn merged into the Law School of the University of Maryland. On July 1, 1920, the University of Maryland at Baltimore and the Maryland State College at College Park were consolidated under the name of the University of Maryland.

BUILDING AND EQUIPMENT

The buildings of the Schools of Law, Medicine, Dentistry and Pharmacy of the University of Maryland are located in the vicinity of Lombard and Greene Streets, in the City of Baltimore, the Law School building being at the southeast corner of Redwood and Greene Streets. This building was erected in 1931 and is a three-story building of colonial design, devoted exclusively to law-school purposes. The first floor contains a large auditorium and practice court, students' lounge, the administrative offices and the women's locker room; on the second floor are four large class-rooms; the third floor is devoted to the reading-room, and offices and reading-room for the law faculty and Law Review staff; in the basement is the men's locker room. The entire west wing of the building is devoted to stack space, affording room for more than 50,000 volumes.

The Law Library now contains some 30,000 volumes. Included therein are several complete sets of the Maryland and Baltimore City reports; all the editions, official and unofficial, of the Supreme Court reports and inferior Federal courts; the National Reporter System and the reports of the Courts of last resort of all states prior thereto, as well as the published decisions of the more important inferior state Courts; the English Law Reports since 1865 and the English Reprint and English Common Law and Chancery Reports covering the period prior to that time; the various selected case series of annotated reports; the statute law of the United States, the several states, and Great Britain, as well as multiple sets of all Maryland codes and session laws; the American Digest System, the English and Empire Digest, and multiple sets of all Maryland Digests; a large collection of carefully selected textbooks and treatises; all of the leading legal periodicals, encyclopedias, citators and other search books. The library is open on weekdays for the use of the students from 9:00 A. M. to 10:30 P. M., and on Saturdays from 9:00 A. M. to 5:00 P. M.

ARRANGEMENT OF HOURS

The Law School is divided into two divisions, the Day School and the Evening School. The same curriculum is offered in each school, and the standards of work and graduation requirements are the same.

The normal Day School course covers a period of three years of thirty-two weeks each, exclusive of holidays.

The normal Evening School course covers a period of four years of thirty-six weeks each, exclusive of holidays. The class sessions are held on Monday, Wednesday and Friday evenings of each week from 5:30 to 10:00 o'clock, leaving the alternate evenings for study and preparation by the student.

REQUIREMENTS FOR ADMISSION

Candidates for Degree—Applicants for admission as candidates for a degree are required to produce evidence of the successful completion of at least three-quarters of the work acceptable for a bachelor's degree granted on the basis of a four-year period of study at an accredited college or university; to satisfy this requirement, applicants must normally have successfully completed at least 90 semester hours or 135 quarter hours of undergraduate work exclusive of credit earned in nontheory courses in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or other courses without intellectual content of substantial value. *All prelegal work must have been passed with a scholastic average at least equal to the average required for graduation in the institution attended.*

The right is reserved to refuse admission to applicants with sufficient scholastic credit, whose presence in the School would, in the judgment of the Faculty Council, be detrimental to the best interests of the School.

Special Students. Candidates for Certificate of the School—A limited number of students, not exceeding ten per cent of the average number of students admitted as beginning regular law students during the two preceding years, applying for entrance with less than the academic credit required of candidates for the law degree, may be admitted as candidates for the certificate of the school, but not for the degree, where, in the opinion of the Faculty Council, special circumstances, such as the maturity and the apparent ability of the student, seem to justify a deviation from the rule requiring at least three years of college work. Applicants for admission as special students must be at least twenty-three years of age and must be specially equipped by training and experience for the study of law.

Application for admittance as a special student should be made as early as possible by letter, showing the age of the applicant, together with a detailed statement of attendance at educational institutions, and of the work therein completed and the work pursued by the applicant since leaving such educational institutions.

Admission to Advanced Standing—Students complying with the requirements for admission to the school who have, in addition, successfully pursued the study of law elsewhere in a law school which, at the time of such student's attendance, was either a member of the Association of American Law Schools or approved by the American Bar Association may, in the discretion of the Faculty Council, upon presentation of a certificate from such accredited law school showing honorable dismissal therefrom, and the successful completion of equivalent courses therein, receive credit for such courses and be admitted to advanced standing. *No student transferring from another law school will be admitted who is not in good scholastic standing at the school from which he transfers.* No degree will be conferred until after at least one year of residence and study at this school.

Prelegal Study—The School does not prescribe any particular undergraduate courses for admission. Proper preparation for the study of law is generally thought to depend not so much upon the specific courses taken by the prelegal student as upon the development of capacity to read and comprehend rapidly and accurately, to think precisely, to analyze complex fact situations, and to speak and write clearly and intelligently. Ordinarily a prelegal student would do well to follow a Bachelor of Arts or Science program with emphasis on courses in English, American and English history, economics, political science and government, and sociology. However, students differ widely in their tastes, and are well advised to concentrate primarily on subjects which they find of particular intellectual interest and stimulation.

Students planning to take the Maryland bar examination on completion of their law studies are required by the rules as to prelegal study of the Court of Appeals to include in their prelegal course at least eight semester hours of English and eight semester hours of history, economics or political science; in addition at least one year of Latin, at either high school or college, is required, for which four semester hours of advanced English may be substituted.

Times of Admission—Beginning students are admitted only once a year, at the opening of the fall semester in September. Applicants for admission to advanced standing may be admitted at the beginning of any semester.

Law School Admission Test—The Law School Admission Test is a legal aptitude test administered by the Educational Testing Service, which charges an examination fee of ten dollars. The test is not required for admission to the School. However, applicants with undergraduate scholastic averages not well above the minimum required for admission would be well advised to take it; application forms and information as to dates and administration of the test may be obtained by writing to the Educational Testing Service, P. O. Box 592, Princeton, N. J.

COMBINED PROGRAM OF STUDIES LEADING TO THE DEGREES OF BACHELOR OF ARTS OR BACHELOR OF SCIENCE AND BACHELOR OF LAWS

The University of Maryland offers combined programs in arts or business administration and law leading to the degrees of bachelor of arts or bachelor of science and bachelor of laws.

Students pursuing such combined programs in college and prelegal subjects will spend the first three years in either the College of Arts and Sciences or in the College of Business and Public Administration at College Park. They will then register in the Law School, and upon the successful completion of the work of the first year in the Day School, or the equivalent work in the Evening School, the degree of bachelor of

arts or bachelor of science will be awarded; a weighted average of at least C is required on law work submitted in satisfaction of the requirements for either of these degrees. Because the general university commencement in June takes place before the School of Law is prepared to release grades of the first-year class, these combined degrees will be conferred at the commencement following the candidate's second year of residence in the School of Law. The degree of bachelor of laws will be awarded upon the successful completion of the work prescribed for graduation in the School of Law.

Details of the combined courses are included in the catalogues of the College of Arts and Sciences and the College of Business and Public Administration; these may be obtained upon application to the Director of Publications, University of Maryland, College Park, Maryland.

REGISTRATION

All students are required, when entering for each session, to report in person at the office of the Secretary of the Law School and enroll. No registration will be allowed except by special action of the Dean after the last day for registration as designated in the calendar.

All students are expected to complete their registration including the filing of class cards and payment of bills on the regular registration days. Those who do not complete their registration during the prescribed days will be charged a fee of \$5.00.

VETERANS' EDUCATIONAL BENEFITS

The University is approved by the Veterans Administration for participation in the program of educational benefits provided for veterans under Public Laws 346 (the Servicemen's Readjustment Act of 1944 or "GI Bill"), 550 (the Veterans Readjustment Assistance Act of 1952) and 16 (the Vocational Rehabilitation Act).

A veteran planning to enter law school under any of these laws should file his application with the Veterans Administration as early as possible, in order that this may be approved before the veteran begins his law studies.

FEES AND EXPENSES

The charges for instruction for resident students are as follows:

Application fee, to accompany application.....	\$ 7.50
Matriculation fee, payable on first registration.....	10.00
Diploma fee, payable upon graduation.....	15.00
Tuition fee, per semester, residents of Maryland (Day School).....	100.00
Tuition fee, per semester, non-residents of Maryland (Day School).....	125.00
Tuition fee, per semester (Evening School).....	75.00
Deficiency examination fee, per examination.....	5.00
Late registration fee.....	5.00
Student activities fee, per semester.....	2.00

The tuition fee for each semester is payable at the time of registration therefor. Students wishing to make arrangements for deferred payment of tuition charges must do so with the Financial Office at or prior to registration for the semester for which such charges are imposed. Students carrying less than ten credit hours in the Day division or less than six credit hours in the Evening division will be charged on the basis of \$10.00 per semester hour carried; an additional fee of \$25.00 per semester will be charged such students in the Day division who are non-residents of Maryland.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in this State for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents of this State by maintaining such residence for at least one full year. However, the right of the minor student to change from a non-resident to resident status must be established by him prior to the registration period set for any semester.

Adult students are considered to be residents if at the time of their registration they have been domiciled in this State for at least one year provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word domicile as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be maintained.

REBATES

The matriculation fee is not subject to rebate. Other tuition charges will be rebated in case of withdrawal of a student during the course of a semester, in accordance with the following schedule:

Period From Date Instruction Begins

2 weeks or less.....	80%
Between 2 and 3 weeks.....	60%
Between 3 and 4 weeks.....	40%
Between 4 and 5 weeks.....	20%
Over 5 weeks.....	No rebate

In all cases of withdrawals from school, immediate notice in writing must be given to the Dean. *The effective date for withdrawals, so far as concerns refunds of tuition, is the date that such notice is received in the Dean's Office.*

SCHOLARSHIPS

Ashman Scholarships—Established in 1922 by Mr. Louis S. Ashman, an alumnus of the School of Law, who assigned to the Regents all royalties from the publication of his books on "Prayers and Instructions" and "Directed Prayers and Instructions" to provide a fund for the payment of a scholarship or scholarships to a student or students recommended by the Faculty Council as worthy to receive the same by reason of scholarly attainments and the need of financial assistance. The value of each scholarship is about \$150.00. In accordance with the donor's wishes, preference will be given to former servicemen in making such awards.

Alumni Association Scholarships—Established in 1953 by the Alumni Association. One or more scholarships carrying tuition will be awarded each year to students recommended by the Faculty Council.

Applications for scholarships must be filed with the Dean's office on or before July 1 of the school year for which scholarships are to be awarded.

REGISTRATION WITH THE COURT OF APPEALS AND ADMISSION TO THE BAR

Under the rules governing admission to the Bar in the State of Maryland, each applicant is required to register with the State Board of Law Examiners as a law student before beginning the study of law. Applicants for such registration must have completed, in addition to a high-school education or the equivalent, two years of work in a college approved by the Board of Law Examiners, or the equivalent. Application blanks for such registration may be procured from the Secretary by the student at the time of his registration in the Law School. A fee of \$25.00, payable to the State Board of Law Examiners must accompany each application for registration. *Such registration as a law student with the State Board of Law Examiners does not automatically qualify an applicant for admission to the Law School, for which compliance with the requirements set forth on page 9 is essential.*

Admission to the Bar is upon examination by the State Board of Law Examiners. The examinations are held in July and March each year, and embrace the following subjects: Agency, Conflict of Laws, Constitutional Law, Contracts, Corporations, Criminal Law, Domestic Relations, Equity, Evidence, Negotiable Instruments, Personal Property, Pleading and Practice at Law and in Equity, Administrative Law Including Public Service Companies, Real Property, Torts, and Testamentary Law. All of the required courses are included in the curriculum offered by the Law School.

Applicants for admission to the Bar must have studied law in the office of a member of the bar of this state, or in a law school of the United States and must file a petition with the State Board of Law

Examiners at least twenty days before the day fixed for the examination they wish to take. A fee of \$25.00, payable to the State Board of Law Examiners, must accompany each application for permission to take the bar examination.

Further information concerning the examination or matters relating to admission to the bar may be had upon application to Mr. Wilson K. Barnes, Secretary, State Board of Law Examiners, 900 Maryland Trust Building, Baltimore 2, Maryland.

EXAMINATIONS AND GRADES

Written examinations are held at the end of the course in all subjects except Practice Court and the Legal Aid Clinic. Unless excused by the Dean, all students must present themselves for examination in each subject for which they are registered at the first regular examination held therein in order to receive credit for such course. A student may not drop a course for which he is registered after the third week of the semester in which the course is first offered. A course may be audited only with the permission of the instructor. *Students dropping a course or changing from credit to audit must give immediate notice to the Dean's office. No student will be permitted to take the examination in any course unless he has attended at least 75 per cent of the lectures therein; nor may any student, without special permission from the Dean, carry in the Day School less than 12 nor more than 16 hours per week and, in the Evening School, less than 6 nor more than 10 hours per week.*

A student failing to present himself for examination in any course must report to the Dean as soon as the circumstances which caused the absence will permit. If the Dean is satisfied that the absence was justifiable (as if due to sickness or other exceptional circumstances) he will give permission for a deferred examination in place of the one missed; otherwise a grade of F will be entered. A fee of \$5.00 will be charged for every deferred examination, except that one fee will cover all deferred examinations due to the same cause.

The following grade symbols are used: A, signifying "excellent"; B, signifying "very good"; C, signifying "good"; D, signifying "passed"; F, signifying "failure"; I, signifying "incomplete." Of these, A, B, C, and D are passing grades, but a grade of D can be counted toward graduation only as hereinafter stated. For the purpose of computing the average grade of a student, the following values are assigned to the grades received: A equals 4; B equals 3; C equals 2; D equals 1; F equals 0.

The grade of I (incomplete) is given only to those students who have a proper excuse for failure to present themselves for examinations or to complete any other work that may be required by the instructor in any course. It is not used to signify work of inferior quality. It may be replaced later by a definite grade for the course, when the instructor therein is prepared to report it.

A student receiving a grade of less than C in any course, may, in the discretion of the instructor, take a re-examination therein, for the purpose of raising such grade, the grade received on such re-examination to be substituted for the original grade received, except with respect to eligibility for scholarship honors. Such re-examination, unless special permission is obtained from the Dean to the contrary, must be taken either at the next regular examination given in such course, or at the next deficiency examination period. Deficiency examinations are held prior to the opening of the school session in September of each year. Not more than one re-examination may be taken in any one course; if a student is not successful in raising his grade thereon, he may do so thereafter only by repeating the course.

In determining the eligibility of a student to continue in attendance at the school, a grade of F in a course of three or more semester hours shall constitute one failure, and a grade of F in a course of less than three semester hours shall constitute a half-failure. A student in the Day division having three or more failures, so computed, or a student in the Evening division having two and a half failures, so computed, is permanently excluded from the School and is not permitted to take re-examinations in the courses failed.

A student in the Day division having less than three failures, so computed, or a student in the Evening division having less than two and a half failures, so computed, and a weighted average below C, will be required to take deficiency examinations in the subjects failed; if on such deficiency examinations, he shall remove all failures and half-failures, he may continue with his class, subject to the conditions as to number of hours of D grades stated hereafter. If, after taking such deficiency examinations, he still is not eligible to continue with his class, he must elect either (1) to withdraw from the School; or (2) to continue on scholastic probation, taking assigned work only. A student with a weighted average of at least C, who has a mark of F in not more than one subject, shall be entitled to continue with his class without removing such failure by re-examination.

Except in the case of a student whose weighted average is at least C, students with the number of hours of D grades following on their records shall be ineligible to continue into the succeeding class, except after reducing such hours of D grades sufficiently by taking deficiency examinations: a first-year day student with more than nine semester hours; a second-year day student with more than fifteen semester hours; a first-year evening student with more than eight semester hours; a second-year evening student with more than twelve semester hours; a third-year evening student with more than sixteen semester hours. If, after taking such deficiency examinations, such a student is still not eligible to continue with his class, he must elect either (1) to withdraw from the School; or (2) to continue on scholastic probation, taking assigned work only.

A student electing to continue on scholastic probation, who fails to receive a grade of at least C in at least three-fourths of the work in which he is registered during the succeeding year, is permanently excluded from the School and is not permitted to take re-examinations in any course.

The Faculty Council reserves the right to require the withdrawal of any student whose continued presence would not, in the judgment of the Council, either because of low scholastic standing or other reasons, be of benefit to himself or would be detrimental to the best interests of the School.

REQUIREMENTS FOR GRADUATION

To be eligible for either the degree or the certificate, a student must have successfully completed courses totaling at least 80 semester hours, in at least three-fourths of which he must have received a grade of C or higher; provided, however, that a student who has failed in not more than one subject, may be allowed to graduate if his general weighted average, including such failure, is at least C.

HONORS AND PRIZES

A student who complies with the requirements for graduation and who attains in all work done in courses offered in the school, and presented for the degree, an average grade of not less than 3.15, may be recommended by the Faculty Council for Graduation with Honor.

Under the will of Mrs. W. Calvin Chesnut, the sum of \$1,000.00 was paid to the Regents of the University as an endowment, the annual income to be used for the purpose of giving a prize for good scholarship in a broad sense, to be determined by the Dean of the School of Law annually, to be known as the Elizabeth Maxwell Carroll Chesnut Prize.

The G. Ridgely Sappington Prize, established in memory of G. Ridgely Sappington, for many years a member of the Faculty of the School of Law, is awarded annually to the student doing the best work in the day division course in Practice, in which Mr. Sappington was the instructor at the time of his death.

The Edward H. Curlander Prizes are awarded annually to the students doing the best work in the courses in Testamentary Law and in Future Interests (Real Property III).

The Nu Beta Epsilon National Law Fraternity Prize was established in 1951 by the Alpha Chapter, founded at the University of Maryland School of Law in 1918. Law books are awarded annually to the student who is adjudged by the faculty editors of the *Maryland Law Review* to have submitted the most significant initial piece of legal writing for present publication in the *Review*. All students are eligible to compete for the award, but it is advisable to consult with the faculty editors before undertaking a project.

The Sam Allen Memorial Prize, established by the Day division class of 1950 in memory of their classmate, Harry Samuel Allen, is awarded annually to a member of the graduating class deemed to have demonstrated outstanding qualities of both leadership and scholarship.

The Lawyers Title Insurance Corporation of Richmond, Virginia, gives an award of \$100 or its equivalent in law books to the senior student judged by the faculty most proficient in the law of Real Property.

The editors of the United States Law Week offer a prize of a year's subscription to the student who, in the judgment of the faculty, makes the most satisfactory scholastic progress during his final school year.

ORDER OF THE COIF

The Order of the Coif is a national law-school honor society, founded to encourage scholarship and to advance the ethical standards of the legal profession, membership in which depends upon high scholastic attainments. Only those students standing among the first tenth of the senior class are eligible for membership. Elections of seniors to the Maryland Chapter of the Order are held during the last semester of the school year.

CURRICULUM

Explanation of Abbreviations—In the list of courses given below, the credit value of each course is indicated in semester units by a numeral in parentheses following the title. The session during which a course is given is shown as follows: I, Fall Semester; II, Spring Semester; Yr., throughout the year.

The Faculty Council reserves the right to make such changes in the curriculum as may be found necessary or desirable. Books listed as used in any course are also subject to change as decided by the instructor.

DAY SCHOOL

FIRST YEAR (All Courses Required)

Agency (2) II—Seavey & Hall's Cases on Agency. Mr. Cunningham.

Contracts (6) Yr.—Patterson and Goble's Cases on Contracts (3rd ed.). Mr. Asper.

Criminal Law (3) I—Casebook and instructor to be announced.

Legal Bibliography (1) I—Casebook and instructor to be announced.

Personal Property (2) I—Fraser's Cases on Property, Vol. II (2nd ed.). Mr. Jones.

Pleading (3) I—Common law pleading with special reference to Maryland procedure. Keigwin's Cases on Common Law Pleading (2nd ed.). Mr. Invernizzi.

Practice (3) II—Trial and appellate practice and procedure with special reference to Maryland procedure. McBaine's Cases on Trial Practice (3rd ed.). Mr. Invernizzi.

Real Property I (3) II—Bigelow, Introduction to Real Property (3rd ed.); Fraser's Cases on Property Introduction (3rd ed.) and Vol. II (2nd ed.). Mr. Reno.

Torts (6) Yr.—Seavey, Keeton and Thurston's Cases on Torts. Mr. Farinholt.

SECOND YEAR (Required Courses)

Constitutional Law (4) I—Dowling's Cases on Constitutional Law (5th ed.). Mr. Reiblich.

Corporations (4) II—Ballantine, Lattin & Jennings' Cases and Materials on Corporations (2nd ed.). Mr. Cunningham.

Equity (3) I—Cook's Cases on Equity (4th ed.). Mr. Howell.

Evidence (4) II—Casebook and instructor to be announced.

Negotiable Instruments (3) I—Steffen's Cases on Commercial and Investment Papers (2nd ed.). Mr. Asper.

Real Property II (4) I—Kirkwood's Cases on Conveyances (2nd ed.). Mr. Reno.

Sales (3) II—Williston and McCurdy's Cases on Sales. Mr. Arnold.

Testamentary Law (2) II—Mechem and Atkinson's Cases on Wills and Administration (4th ed.). Mr. Reno.

THIRD YEAR (Required Course)

Practice Court and Legal Ethics (4) Yr.—Selected materials. Mr. Herrmann.

SECOND and THIRD YEAR—Elective Courses

Admiralty (2) II—Sprague & Healy's Cases on Admiralty. Mr. Howell.

Administrative Law (3) II—Davis' Cases on Administrative Law. Mr. Reiblich.

Conflict of Laws (4) Yr.—Cheatham, Goodrich, Griswold & Reese's Cases on Conflict of Laws (3rd ed.). Mr. Farinholt.

Creditors' Rights (4) I—Hanna and MacLachlan's Cases on Creditors' Rights, Vol. I (4th ed.) and Supplement. Mr. Arnold.

Domestic Relations (2)—Casebook and instructor to be announced.

- Federal Jurisdiction and Procedure (2) II**—McCormick and Chadbourn's Cases on Federal Courts (2nd ed.) and Supplement. Mr. Gump.
- Insurance (2) II**—Patterson's Cases on Insurance (3rd ed.). Mr. Jones.
- Labor Law (2) II**—Handler and Hays' Cases on Labor Law (2nd ed.). Mr. Feinblatt.
- Legal Aid Clinic (2)**—Students registering for this course work two afternoons a week during one semester at the Baltimore Legal Aid Bureau. Limited to twelve students in each semester. Mr. Barnard.
- Mortgages (2) II**—Walsh and Simpson's Cases on Security, Vol. II. Mr. Arnold.
- Partnership (2) I**—Crane and Magruder's Cases on Partnership (Shorter Selection). Mr. Arnold.
- Real Property III (3) I**—Simes' Cases on Future Interests (2nd ed.). Mr. Jones.
- Restitution (2) I**—Durfee and Dawson's Cases on Remedies, Vol. II. Mr. Reno.
- Seminar on Legal Problems (2) II**—Selected materials. Mr. Asper.
- Seminar on Medico-Legal Problems (2) I**—Selected materials. Mr. Farinholt.
- Seminar on Tax Problems (2) II**—Selected materials. Mr. Cunningham.
- Taxation (4) I**—Griswold's Cases on Federal Taxation (4th ed.) and Supplement. Mr. Cunningham.
- Trade Regulation (3) II**—Handler's Cases on Trade Regulation. Mr. Asper.
- Trusts (3) II**—Scott's Cases on Trusts (4th ed.). Mr. Jones.

EVENING SCHOOL

FIRST YEAR (All Courses Required)

- Contracts (6) Yr.**—Patterson and Goble's Cases on Contracts (3rd ed.). Mr. Asper.
- Criminal Law (3) I**—Casebook and instructor to be announced.
- Legal Bibliography (1) II**—Casebook and instructor to be announced.
- Personal Property (2) I**—Fraser's Cases on Property, Vol. II (2nd ed.). Mr. Farinholt.
- Real Property I (3) II**—Bigelow, Introduction to Real Property (3rd ed.); Fraser's Cases on Property Introduction (3rd ed.) and Vol. II (2nd ed.). Mr. Reno.

Torts (6) Yr.—Seavey, Keeton and Thurston's Cases on Torts. Judge Watkins.

SECOND YEAR (All Courses Required)

Agency (2) II—Seavey & Hall's Cases on Agency. Mr. Ramsey.

Equity (3) I—Cook's Cases on Equity (4th ed.). Mr. Howell.

Pleading (3) I—Common law pleading with special reference to Maryland procedure. Keigwin's Cases on Common Law Pleading (2nd ed.). Mr. Kaiser.

Practice (3) II—Trial and appellate practice and procedure with special reference to Maryland procedure. McBaine's Cases on Trial Practice (3rd ed.). Mr. Invernizzi.

Real Property II (4) I—Kirkwood's Cases on Conveyances (2nd ed.). Mr. Reno.

Sales (3) II—Williston and McCurdy's Cases on Sales. Mr. Arnold.

Testamentary Law (2) II—Mechem and Atkinson's Cases on Wills and Administration (4th ed.). Mr. Reno.

THIRD YEAR (Required Courses)

Constitutional Law (4) I—Dowling's Cases on Constitutional Law (5th ed.). Mr. Reiblich.

Corporations (4) II—Ballantine, Lattin & Jennings' Cases and Materials on Corporations (2nd ed.). Mr. Cunningham.

Negotiable Instruments (3) I—Britton's Cases on Bills and Notes (4th ed.). Mr. Morrow.

Evidence (4) II—Casebook and instructor to be announced.

FOURTH YEAR (Required Course)

Practice Court and Legal Ethics (4) Yr.—Selected materials. Mr. Herrmann.

THIRD and FOURTH YEAR—Elective Courses

Administrative Law (3) II—Davis' Cases on Administrative Law. Mr. Reiblich.

Admiralty (2) II—Sprague & Healy's Cases on Admiralty. Mr. Howell.

Conflict of Laws (4) Yr.—Cheatham, Goodrich, Griswold & Reese's Cases on Conflict of Laws (3rd ed.). Mr. Farinholt.

- Creditors' Rights (4) I**—Hanna and MacLachlan's Cases on Creditors' Rights, Vol. I (4th ed.) and Supplement. Mr. Arnold.
- Domestic Relations (2) II**—Casebook and instructor to be announced.
- Insurance (2) I**—Patterson's Cases on Insurance (3rd ed.). Mr. Ramsey.
- Labor Law (2) II**—Handler and Hays' Cases on Labor Law (2nd ed.). Mr. Feinblatt.
- Real Property III (3) I**—Simes' Cases on Future Interests (2nd ed.). Mr. Jones.
- Taxation (4) I**—Griswold's Cases on Federal Taxation (4th ed.) and Supplement. Mr. Cunningham.
- Trusts (3) II**—Scott's Cases on Trusts (4th ed.). Mr. Jones.

PRACTICE COURT

The Law School endeavors not only to equip its students with an accurate knowledge of legal principles, but also to train them in the application of that knowledge and to fit them for the practice of the law. To that end special care and thought are devoted to the conduct of the Practice Court, which is in session throughout the scholastic year.

The work of the Practice Court is designed to afford opportunity not only for the argument of law questions, but also for preparation and conduct of a case through all its stages as nearly as possible in accordance with the procedure in actual trial and appellate work.

A set of Court Rules has been adopted in accordance with which the students are required to prepare and file their pleadings and conduct their cases. Students are furnished with statements of facts, involving debatable principles of law, supposed to represent the claims of the respective parties to the litigation, from which they draft the necessary pleadings and prepare their cases for trial. They are also required to prepare and file trial briefs and appeal briefs.

The course is given in the third year of the Day School and the fourth year of the Evening School. In connection with the course instruction in Legal Ethics is offered. Except as herein otherwise provided, the course is required for graduation and attendance at all sessions of the Court by members of those classes is compulsory. There is no examination in this course, the grade of the student being based upon the work done in the Court. The grade thus attained by the student is treated in the same manner as the grade given on examination in other subjects, and the successful completion of the course gives the student credit toward his degree.

LEGAL AID CLINIC

By arrangement with the Baltimore Legal Aid Bureau, selected senior students, not exceeding twelve in any one semester, may substitute one semester's work at the Legal Aid Bureau for one semester of the Practice Court. Students taking clinic work are required to spend at least two afternoons a week at the Legal Aid Bureau, working under the supervision of a member of the Bureau staff. The work includes consultation with clients, interviews with witnesses, preparation of memoranda, examination of records of various kinds, and in general such work as a clerk in a general law office would be called upon to perform.

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The Maryland Law Review, appearing quarterly, is published by the Law School with the support and cooperation of the Maryland State Bar Association, the Bar Association of Baltimore City, and the Junior Bar Association of Baltimore City. *The Review* is devoted primarily to the discussion of Maryland law and of questions regarded as of particular interest to Maryland lawyers. Members of the Student Editorial Board may, upon the recommendation of the Faculty Editor of the *Law Review*, receive semester hour credit toward the degree of Bachelor of Laws, not to exceed a total of 4 semester hours and not to exceed 2 semester hours in any one year. Such credit may be substituted, *pro tanto*, for work in Practice Court. Selection for the Student Editorial Board is an honor, and an opportunity for training of high value in legal research. The governing Board of Trustees consists of a representative from the State Judiciary, representatives of the Bar Associations, the Dean of the Law School, and the Faculty Editor.

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The Student Bar Association is the official student organization and is affiliated with the American Law Student Association, sponsored by the American Bar Association. All students are automatically members by virtue of registration and dues are included in the Student Activities fee. Its primary purpose is to acquaint students with problems of the profession, to foster professional ideals, and to bring about closer contact with the organized bar. During the course of the year, it sponsors lectures by members of the bench and bar on various legal and professional problems, as well as various social functions.

The Student Council functions as the executive board of the Student Bar Association and as a coordinating agency between the student body, the school administration and the faculty. Members are elected by vote of their respective classes; there is also a faculty advisor appointed by the Dean.

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- OLIVER WALTER SPURRIER, Assistant in Pediatrics.
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- ALVIN A. STAMBLER, Assistant in Pediatrics.
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- ARNOLD TRAMER, Instructor in Pediatrics.
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- WILLIAM EARL WEEKS, Assistant in Pediatrics.
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- GIBSON JACKSON WELLS, Assistant Professor of Pediatrics.
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DEPARTMENT OF PHARMACOLOGY

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DEPARTMENT OF PHYSIOLOGY

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DEPARTMENT OF PSYCHIATRY

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DEPARTMENT OF RADIOLOGY

- JOHN MURRAY DENNIS, Professor of Radiology and Head of the Department.
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DEPARTMENT OF SURGERY

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- CHARLES REID EDWARDS, Professor of Surgery.
M.D., University of Maryland, 1913.
- MONTE EDWARDS, Clinical Professor of Surgery.
M.R.C.S. (England), L.R.C.P. (London), St. Thomas' Hospital Medical School, 1917.
- WILLIAM C. ESMOND, Instructor in Surgery.
B.S., University of Maryland, 1940; M.D., 1951.
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- I. RIDGEWAY TRIMBLE, Professor of Clinical Surgery.
B.A., Princeton University, 1922; M.D., Johns Hopkins University, 1926.
- HENRY FRANZ ULLRICH, Associate Professor of Orthopedic Surgery.
M.D., University of Maryland, 1929; Sc.D., Columbia University, 1936.
- ALLEN FISKE VOSHELL, Professor of Orthopedic Surgery.
B.A., Johns Hopkins University, 1915; M.D., 1919.
- WILLIAM WALLACE WALKER, Associate Professor of Surgery.
B.S., West Virginia University, 1921; M.D., University of Maryland, 1923.
- ARTHUR THOMAS WARD, JR., Associate in Otolaryngology.
B.A., Johns Hopkins University, 1933; M.D., 1939.
- MILTON J. WILDER, Assistant Professor of Orthopedic Surgery.
B.S., University of Maryland, 1933; M.D., 1939.
- DAVID REID WILL, Instructor in Surgery.
M.D., University of Maryland, 1943.
- AUSTIN H. WOOD, Associate in Urology.
M.D., University of Maryland, 1914.

GEORGE HERSCHEL YEAGER, Professor of Clinical Surgery.

B.S., University of West Virginia, 1927; M.D., University of Maryland, 1929.

JOHN DAVID YOUNG, JR., Professor of Urology and Head of the Division.

B.A., Bridgewater College, 1938; M.D., University of Maryland, 1941.

JACOB ZIMMERMAN, Assistant in Surgery.

M.B., B.S., University of London, 1943.

HOWARD LESTER ZUPNIK, Instructor in Surgery.

B.S., University of Maryland, 1930; M.D., 1932.

RESEARCH ASSOCIATES

Elsa John, M.T., B.S., Research Associate in Medicine.

Gerald D. Klee, M.D., Research Associate in Psychiatry.

Leopold May, B.Ch.E., M.S., Ph.D., Research Associate in Psychiatry.

Moritz Michaelis, Ph.D., Research Associate in Surgery.

Harvey A. Robinson, A.B., A.M., Ed.D., Research Associate in Psychiatry.

FELLOWS

Tanash Haralambos Atoynatan, P.G.N., M.D., Fellow in Psychiatry.

Norman Bacher, B.S., M.D., Fellow in Psychiatry.

Emidio Bianco, M.D., Fellow in Medicine.

Jean M. Coyle, B.S., M.D., Fellow in Psychiatry.

Roger H. Davidheiser, B.S., M.S., Fellow in Anatomy.

Paul D. Ellner, B.S., M.S., Fellow in Microbiology.

Richard L. Glasser, A.B., Fellow in Physiology.

Sheldon Goldgeiger, B.S., Summer Fellow in Obstetrics and Gynecology.

Barrett Goldstein, A.B., Summer Fellow in Obstetrics and Gynecology.

William J. Hicken, B.A., Summer Fellow in Pharmacology.

Sydney Katz, A.B., M.D., Research Fellow in Legal Medicine.

Donald Keister, B.S., Fellow in Biological Chemistry.

Leonard Kogan, Summer Fellow in Neurology.

Frank K. Kriz, B.S., Summer Fellow in Surgery.

Frances Litrenta, A.B., M.D., Fellow in Psychiatry.

Zenus A. McDonald, A.B., Fellow in Anatomy.

Motoji Miyazaki, M.D., Fellow in Neurology.

Sherwood Miller, B.S., M.D., Fellow in Medicine.

Chung S. Park, B.S., M.D., Fellow in Pharmacology.

William Rappoport, B.A., Summer Fellow in Obstetrics and Gynecology.

Jay T. Rauh, Summer Fellow in Microbiology.

Emily M. Rody, B.A., Fellow in Psychiatry.

Walter M. Shaw, B.A., Summer Fellow in Thoracic Surgery.

Thomas Ashley Stebbins, B.A., Fellow in Obstetrics and Gynecology.

Joseph Robert Suriano, B.S., Fellow in Microbiology.

Yasashi Togo, M.D., Fellow in Medicine.

Robert H. Weaver, B.S., Fellow in Biological Chemistry.

Harold R. White, B.S., Fellow in Biological Chemistry.

Virginia E. Young, A.B., Summer Fellow in Neurology.

CONSULTANTS

John M. Arthur, A.B., M.D., Consultant in Psychiatry.
Bernard Glueck, M.D., Consultant in Psychiatry.
Frieda G. Rudo, B.A., Consultant in Biochemistry in Surgery.

RESEARCH ASSISTANTS

John D. Alexander, B.A., Research Assistant in Psychiatry.
Martin Anderson, B.S., M.S., Research Assistant in Pediatrics.
Florence M. Burnett, R.N., B.S., M.S., Research Assistant in Psychiatry.
Alice M. Conlan, Research Assistant in Pharmacology.
Flo Mohr Councill, A.B., Research Assistant in Biological Chemistry.
Dorothy DeSantis, Research Assistant in Medicine.
Elmar Einberg, E.E., Research Assistant in Psychiatry.
Janet Estes, M.T., Research Assistant in Medicine.
Julia J. Fitch, Research Assistant in Pharmacology.
Ella Freytag, Research Assistant in Legal Medicine.
Maria Garcia, A.B., Research Assistant in Biological Chemistry.
Joseph Greenblum, B.S.S., M.S., Research Assistant in Psychiatry.
Nancy B. Hoffman, B.S., Research Assistant in Psychiatry.
Elizabeth Baker Kelley, B.S., Research Assistant in Psychiatry.
Charles McBeth, B.S., M.S., Research Assistant in Legal Medicine.
Ann M. Morgan, B.S., Research in Pharmacology.
Curtis B. Pfeiffer, Research Assistant in Anatomy.
Daniel S. Sax, A.B., Research Assistant in Psychiatry.
Arthur Silverstein, B.A., M.A., Research Assistant in Psychiatry.
Dorothy Ann Streb, A.B., Research Assistant in Dermatology.
Toba Tahl, B.A., M.S.S., Research Assistant in Psychiatry.
Myron Wolbarsht, A.B., Research Assistant in Psychiatry.

TRAINEES

John Stauffer, M.D., Trainee in Arthritis—Metabolism.

HISTORY OF THE SCHOOL OF MEDICINE

The present School of Medicine, with the title University of Maryland School of Medicine and College of Physicians and Surgeons, is the result of a consolidation and merger of the University of Maryland School of Medicine with the Baltimore Medical College (1913) and the College of Physicians and Surgeons of Baltimore (1915).

Through the merger with the Baltimore Medical College, an institution of thirty-two years' growth, the facilities of the School of Medicine were enlarged in faculty, equipment and hospital connection.

The College of Physicians and Surgeons was incorporated in 1872, and established on Hanover Street in a building afterward known as the *Maternité*, the first obstetrical hospital in Maryland. In 1878 union was effected with the Washington University School of Medicine, in existence since 1827, and the college was removed to Calvert and Saratoga Streets. Through the consolidation with the College of Physicians and Surgeons, medical control of the teaching beds in the Mercy Hospital was obtained.

The School of Medicine of the University of Maryland is one of the oldest foundations for medical education in America, ranking fifth in point of age among the medical colleges of the United States. It was organized in 1807 and chartered in 1808 under the name of the College of Medicine of Maryland, and its first class was graduated in 1810. In 1812 the College was empowered by the Legislature to annex three other colleges or faculties: Divinity, Law, and Arts and Sciences; and the four colleges thus united were "constituted an University by the name and under the title of the University of Maryland."

The original building of the Medical School at the N. E. corner of Lombard and Greene Streets was erected in 1812. It is the oldest structure in this country from which the degree of doctor of medicine has been granted annually since its erection. In this building were founded one of the first medical libraries and one of the first medical school libraries in the United States.

At this Medical School dissection was made a compulsory part of the curriculum, and independent chairs for the teaching of gynecology and pediatrics (1867), and of ophthalmology and otology (1873), were installed for the first time in America.

This School of Medicine was one of the first to provide for adequate clinical instruction by the erection of its own hospital in 1823. In this hospital intramural residency for senior students was established for the first time.

The School of Medicine has been co-educational since 1918.

BUILDINGS AND FACILITIES

The original medical building at the N. E. corner of Lombard and Greene Streets houses the offices of the Dean, Associate Deans, the Committee on Admissions, and Postgraduate Committee and two lecture halls.

The Administration Building, to the east of the original building, contains the Baltimore offices of the Registrar and two lecture halls.

The laboratory building at 31 South Greene Street is occupied by the departments of Pathology, Bacteriology and Biochemistry.

The Frank C. Bressler Research Laboratory provides the departments of Anatomy, Histology and Embryology, Pharmacology, Physiology and Clinical Pathology with facilities for teaching and research. It also houses the research laboratories of the clinical departments, animal quarters, a laboratory for teaching Operative Surgery, a lecture hall and the Bressler Memorial Room.

This building was erected in 1939-1940 at 29 South Greene Street opposite the University Hospital. It was built with funds left to the School of Medicine by the late Frank C. Bressler, an alumnus, supplemented by a grant from the Federal government. The structure, in the shape of an I, extends east from Greene Street, just north of the original building.

MEDICAL LIBRARY

The Medical Library of the University of Maryland, founded in 1813 by the purchase of the collection of Dr. John Crawford, now numbers about 40,000 volumes and several thousand pamphlets. Over six hundred of the leading medical journals, both foreign and domestic, are received regularly. The library, formerly housed in Davidge Hall, is now in temporary quarters at 6 South Greene Street for the interval while a new medical sciences library building is being constructed at the corner of Lombard and Greene Streets. Although much of the less used material is, of necessity, in storage, library services will be adequately maintained under the interim arrangement.

The library of the Medical and Chirurgical Faculty of Maryland and the Welch Medical Library are open to students of the medical school without charge. Other libraries of Baltimore are the Peabody Library and the Enoch Pratt Free Library.

OUT PATIENT DEPARTMENT

The Out Patient Department is located on the S. W. corner of Lombard and Greene Streets. The building was originally the University Hospital. It has been remodeled to provide space and facilities for more than thirty clinics, the departments of X-ray, a Pharmacy, Laboratory and other ancillary services. Admission policies are predicated upon the teaching requirements of the School of Medicine and the ward services of the University Hospital.

A close liaison is maintained with the City Health Department through the joint efforts of the University Hospital and the City Department of Health in maintaining the Well Baby Clinic, the Western Health District and the Medical Care Clinic, which are housed in the Out Patient Department building.

The Department of Art and the Department of Dental Anatomy also have quarters in the Out Patient Department building.

UNIVERSITY HOSPITAL

The University Hospital, a Department of the University of Maryland, is

the oldest institution for the care of the sick in the State of Maryland. It was opened in September 1823 under the name of the Baltimore Infirmary and at that time consisted of only four wards, one of which was reserved for patients with diseases of the eye.

In 1933-1934 the New University Hospital Building was erected. It has a capacity of 435 beds and 65 bassinets. In 1952-1953 an ultra-modern Psychiatric Institute Building was erected and a junctional wing was added to the general hospital. The new additions increased the hospital bed capacity to 659 beds and 70 bassinets devoted to general medicine, surgery, obstetrics, pediatrics, psychiatry and the various medical and surgical specialties. Three hundred and forty-two are for ward patients.

The new hospital buildings are situated at the southwest corner of Redwood and Greene Streets opposite the medical school buildings. The students, therefore, are in close proximity and little time is lost in passing from the lecture halls and laboratories to the clinical facilities of the University Hospital. The hospital as planned, makes a particularly attractive teaching unit and is a very valuable addition to the clinical teaching facilities of the medical school.

Most of the Ancillary Services are located on the second floor of the Hospital. The north wing is occupied by the department of roentgenology. The east wing houses clinical pathology and special laboratories for clinical microscopy, biochemistry, bacteriology, and hematology. The south wing provides space for electrocardiographic and basal metabolism departments. The west wing contains the departments of rhinolaryngology and bronchoscopy, industrial surgery, and male and female cystoscopy. ..

The Emergency Service of the hospital receives and treats a large number of emergency cases because of its proximity to the largest manufacturing and shipping districts of the city. During the past fiscal year a total of 31,249 patients were treated in the Emergency Room.

The Out Patient Department of the University Hospital is a well organized teaching area. Over 100,000 visits to the various clinics of the Out Patient Department were made during the last fiscal year.

THE PSYCHIATRIC INSTITUTE

The Psychiatric Institute of the University was opened for the care of patients in 1953. It is a six-story building connected directly with the University Hospital, of which it is an integral part. It houses the Department of Psychiatry of the Medical School. The upper three floors of the building are reserved for the treatment and care of 100 in-patients. The out-patient unit, which includes the child guidance clinic and adult psychiatric clinics, occupies the three lower floors. Clinical and research laboratories are located in the first and second floors of the connecting wing. There is a lecture hall and a large study library on the first floor.

Each of the upper floors is arranged into two wards with dining rooms next to a central kitchen for each ward. A nurses' station is in the center of each floor allowing ready visibility and access to the rooms along the corridors. The third and fourth floors are used for disturbed patients.

Facilities are available to treat patients in every phase of psychiatric illness and rehabilitation. Rooms are available for the care of patients in the acutely disturbed phase of their illness. There are small units for various types of physical treatments and for hydrotherapy situated on and adjacent to the disturbed wards.

Recreational facilities are available for adults and children in a large auditorium and gymnasium on the seventh floor which lead to an enclosed roof. A large playground is available to in-patients and out-patients alike.

The lower three floors of the building are used for the child guidance clinic and for out-patients. There are 63 offices available to physicians, nurses, psychologists and social workers; also available are five large waiting rooms and three conference rooms. Eleven offices are adjacent to the wards and fourteen offices can be used for both in-patients and clinic patients. Sixteen offices have microphone outlets so physicians can make recordings for study. A library of recordings is near the main library where students can listen to recorded interviews.

Space is provided for clinical and research laboratories. EEG connections are available to several laboratories. Three clinical laboratories, a psychological laboratory and a neuro-physiological laboratory are in the connecting wing between the psychiatric unit and the general hospital. These are available for purposes of diagnosis, treatment and research.

MERCY HOSPITAL

Mercy Hospital traces its history back to the foundation of the Washington School of Medicine in 1824. In 1872 some of the members of this institution founded a new school, which was the beginning of the College of Physicians and Surgeons of Baltimore.

Washington School of Medicine opened a dispensary and a small hospital at the corner of Saratoga and Calvert Streets and named it the Baltimore City Hospital. This building served both as a hospital and a medical school. In 1874 the Sisters of Mercy, upon the invitation of Washington School of Medicine, assumed responsibility for the Nursing Services of the hospital. In 1876, Washington University merged with the College of Physicians and Surgeons.

In 1888 the Sisters of Mercy with the assistance of the Faculty of the College of Physicians and Surgeons laid the cornerstone of the present hospital. Since then the growing demands for more space have compelled the erection of addition after addition until now it accommodates 356 patients.

In 1909 the name of the Baltimore City Hospital was changed to Mercy Hospital.

The clinical material in the free wards is under the exclusive control of the University of Maryland School of Medicine and College of Physicians and Surgeons. One hundred ninety-three beds are allotted for teaching purposes.

During the year ending December 31, 1954, there were 13,087 general admissions, 25,888 dispensary visits, 2,544 obstetrical deliveries, and 14,330 emergency visits in the Accident Department.

Mercy Hospital founded its School of Medical Technology in 1928. It was officially approved in 1933 making it the first approved School of Medical Technology in the city. It is also approved by the Council of Medical Education and Hospitals of the American Society of Clinical Pathologists.

The clinical facilities of the School of Medicine have been largely increased by the liberal decision of the Department of Public Welfare to allow the use of the wards of these hospitals for medical education. The autopsy material also is available for student instruction.

Members of the junior class make daily visits to these hospitals for clinical instruction in medicine, surgery, and the specialties.

The Baltimore City Hospitals consist of the following separate divisions:

The General Hospital, 420 beds, 80 bassinets.

The Hospital for Chronic Cases, 500 beds.

The Hospital for Tuberculosis, 440 beds.

Infirmary (Home for Aged) 425 beds.

Out Patient Department.

THE JAMES LAWRENCE KERNAN HOSPITAL AND INDUSTRIAL SCHOOL OF MARYLAND FOR CRIPPLED CHILDREN

This institution is situated on an estate of 75 acres at Dickeyville. The site is within the northwestern city limits and of easy access to the city proper.

The location is ideal for the treatment of children, in that it affords all the advantages of sunshine and country air.

A hospital unit, complete in every respect, offers all modern facilities for the care of any orthopaedic condition in children.

The hospital is equipped with 80 beds—endowed, and city and state supported.

The orthopaedic dispensary at the University Hospital is maintained in closest affiliation and cares for the cases discharged from the Kernan Hospital. The physical therapy department is very well equipped with modern apparatus and trained personnel. Occupational therapy has been fully established and developed under trained technicians.

THE BALTIMORE EYE, EAR, AND THROAT HOSPITAL

This institution was first organized and operated in 1882 as an outgrowth of the Baltimore Eye and Ear Dispensary, which closed on June 14, 1882. The name then given to the new hospital was The Baltimore Eye and Ear Charity Hospital. It was located at the address now known as 625 W. Franklin St. The out-patient department was opened on September 18, 1882 and the hospital proper on November 1 of the same year. In 1898 a new building afforded 24 free beds and 8 private rooms; by 1907 the beds numbered 47; at present there are 60 beds, 29 of which are free. In 1922 the present hospital building at 1214 Eutaw Place was secured and in 1926 the dispensary was opened. In 1928 a clinical laboratory was installed. During 1953 the out-patient visits numbered 22,434.

Through the kindness of the Hospital Board and Staff, our junior students have access to the dispensary which they visit in small groups for instruction in ophthalmology.

LUTHERAN HOSPITAL OF MARYLAND INC.

The Lutheran Hospital of Maryland Inc., originally organized in 1923 as the West Baltimore General Hospital, is a general hospital of 191 adult beds and 43 bassinets, located in the western section of the city. The hospital became an affiliate of the School of Medicine in 1953.

The Lutheran Hospital of Maryland offers an academic postgraduate program in the major specialties of medicine, surgery, gynecology, and obstetrics, being fully approved by the respective American Boards. A postgraduate teaching program of lectures and clinics is an integral part of the residency training. The hospital provides modern laboratory and library facilities, particularly adapted to postgraduate medical education. An adequate clinical service is maintained for training in the medical and surgical specialties. All academic programs are under the supervision of a Director of House Officer Training.

REQUIREMENTS FOR ADMISSION

METHOD OF MAKING APPLICATION FOR ADMISSION

When to apply:

Applications must be filed during the period from September 15 to January 15 for the subsequent September class.

Where to apply:

Requests for application forms should be sent to the Committee on Admissions, School of Medicine, University of Maryland, 522 West Lombard Street, Baltimore 1, Maryland.

APPLICATION FOR ADMISSION TO ADVANCED STANDING

Students who have attended approved medical schools are eligible to file applications for admission to the second and third year classes only. These applicants must be prepared to meet the current first-year entrance requirements in addition to presenting acceptable medical school credentials, and a medical school record based on courses which are quantitatively and qualitatively equivalent to similar courses in this school.

Application to advanced standing is made in accordance with the instructions accompanying the application form.

Persons who already hold the degree of Doctor of Medicine will not be admitted to the Medical School as a candidate for that degree from this university.

MINIMUM REQUIREMENTS FOR ADMISSION

The minimum requirements for admission to the School of Medicine are:

- (a) Graduation from an approved secondary school, or the awarding of a high school equivalency certificate by a state or county board of public education, and
- (b) A minimum of three academic years of acceptable college credit, exclusive of physical education and military science, earned in colleges of arts and sciences, whose names occur in the current list of "Approved Colleges of Arts and Sciences" as compiled by the Council on Medical Education and Hospitals of the American Medical Association. Applicants with a bachelor's degree in arts and sciences from approved college or university will be given preference.

- (c) The following courses and credits in required basic subjects must be completed by June of the year the applicant desires admission:

	Semester Hours		Quarter Hours	
General biology or zoology.....	*(6)	8	*(9)	12
Inorganic chemistry	*(6)	8	*(9)	12
Organic chemistry		6		9
Quantitative chemistry		3		5
General Physics	*(6)	8	*(9)	12
English		12		18
Foreign language		6		9

- (d) In addition, sufficient credits in Arts and Science courses to make a minimum of 90 hours, exclusive of courses in physical education and military science. Courses must be acceptable by the college or university in which they were taken as well as at the University of Maryland, as satisfying requirements for an A.B. or B.S. degree.
- (e) Students will not be admitted who have failures in courses, which if they were not absolved, would prevent them from completing requirements for an A.B. or B.S. degree. Therefore, if any unabsolved failures appear on his transcript, the applicant must submit a letter from the Dean, Registrar or other authorized official stating that such is not the case.

Careful attention should be given to the selection of elective courses particularly in the natural sciences. If possible, the student should plan a four-year curriculum with a suitable Arts and Sciences major, not necessarily in science. A major in some other area is quite acceptable although it is not intended to divert students from a science major if this is their field of choice or if they plan to follow research in medicine. If the student wishes to take science courses beyond those required, he is encouraged to take such subjects as Embryology, Psychology, Comparative Anatomy, Parasitology, Genetics, Cellular Physiology, Physical Chemistry. Courses given in medical school such as Histology, Biochemistry, Neurology, Mammalian Physiology, Human Anatomy and Bacteriology are not recommended unless they are required in the student's major sequence. Having credit in such courses will not excuse the student from taking them in medical school. In the non-science area, courses in English, Philosophy, Sociology, Economics, Government and Politics, History are recommended.

Students are selected on the basis of their academic achievement, medical aptitude test scores, recommendations from college instructors or premedical committee, and personal interview. A student may be disqualified because of unsatisfactory reports in any of the areas. Academic achievement alone does not automatically insure acceptance as the Committee is equally concerned with personality, aptitude, character, motivation, and the assessment of the individual as a potential physician. Letters of recommendation from college instructors are requested from at least two science instructors and one non-science instructor.

Preference will be given to Maryland residents but well-qualified applicants from other areas in the United States or Canada will be considered. Applicants from foreign schools must complete at least 2 years of premedical work in an approved

*Consideration will be given applicants from the New England area where 6 semester hours, or 9 quarter hours, is the standard credit for a science course.

college or university in the United States or Canada. No applicants from foreign medical schools will be approved for advanced standing.

STATE MEDICAL STUDENT QUALIFYING CERTIFICATES

Candidates for admission who live in or expect to practice medicine in Pennsylvania, New Jersey or New York, should apply to their respective state boards of education for medical student qualifying certificates (Pennsylvania and New Jersey) or approval of applications for medical student qualifying certificates (New York).

Those students who are accepted must file satisfactory State certificates in the office of the Committee on Admissions, School of Medicine, before registration. No exceptions will be made to this requirement.

Addresses of the State Certifying Offices

Director of Credentials Section, Pennsylvania Department of Public Instruction, Harrisburg, Pa.

Chief of the Bureau of Credentials, New Jersey Department of Public Instruction, Trenton, N. J.

Supervisor of Qualifying Certificates, The State Education Department, Examinations and Inspections Division, Albany, N. Y.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in this State for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents of the State by maintaining such residence for at least one full year. However, the right of the minor students to change from a non-resident to resident status must be established by him prior to the registration period for any semester.

Adult students are considered to be resident if at the time of their registration they have been domiciled in this State for at least one year provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word domicile as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be maintained.

CURRENT FEES

Application fee	\$ 7.50
Matriculation fee (paid once).....	10.00
Tuition fee (each year)—Residents of Maryland.....	650.00
Tuition fee (each year)—Non-Residents.....	800.00
Laboratory fee (each year).....	25.00
Student health service fee (each year).....	30.00
Student activities and service fee (each year).....	20.00
†Lodging and meals fee.....	20.00
Graduation fee	15.00
Re-examination fee (each subject).....	5.00
Late registration fee	5.00

RULES FOR PAYMENT OF FEES

Make all checks or money orders payable to the "University of Maryland".

When offering checks or money orders in payment of tuition and other fees, students are requested to have them drawn in the exact amount of such fees. Personal checks whose face value is in excess of the fees due will be accepted for collection only.

Acceptance.—Payment of the matriculation fee of \$10.00 and of a deposit on tuition of \$50.00 is required of accepted applicants before the expiration date specified in the offer of acceptance. This remittance will be credited upon registration to the first semester charges. In the event of withdrawal before registration the \$10.00 matriculation fee will be retained by the School of Medicine and the \$50.00 advance deposit will be returned on request.

Registration.—For the Fall semester, all students, after proper certification, are required to complete a set of registration cards to be found in the Student Lounge of the Gray Laboratory before taking them to the Registrar's Office. All students are expected to complete their registration, including the payment of bills on the registration days. Those who do not complete their registration on the prescribed days will be charged a fee of \$5.00.

One-half of the tuition fee and all of the following—the laboratory fee, the student health fee, the maintenance and service fee and the student activities fee are payable on the date specified for registration for the first semester.

The remainder of the tuition fee shall be paid on the date designated for the payment of fees for the second semester. Fourth year students shall pay the graduation fee, in addition, at this time.

PENALTY FOR NON-PAYMENT OF FEES

If semester fees are not paid in full on the specified registration dates, a penalty of \$5.00 will be added.

†Senior Students will be billed for this fee, covering lodging and meals for a two-week period while on obstetrical service at Baltimore City Hospitals. This fee must be paid by all senior students whether or not they serve during the previous summer or during the academic year.

If a satisfactory settlement, or an agreement for settlement, is not made with the business office within ten days after a payment is due, the student automatically is debarred from attendance at classes and will forfeit the other privileges of the School of Medicine.

REEXAMINATION FEE

A student who is eligible for reexaminations must secure a bill in the amount of \$5.00 from the Registrar's Office and make payment to the Cashier for each subject in which he is to be examined, and he must present the receipt to the faculty member giving the examination before he will be permitted to take the examination.

STUDENT ACTIVITIES AND SERVICE FEE

This fee pays for the use of clothing lockers, provides library privileges, maintains student loan collections, a student lounge and cafeteria. It supports a recreational program for students of all classes and provides photographs for identification for all school purposes, including state boards. It supports the activities of the Student Council. A portion (\$5) of this fee provides a year-book for each medical student. This fee is budgeted by the Student Council and all expenditures from it must be approved by this body in accordance with its own By-Laws.

STUDENT HEALTH SERVICE

JAMES R. KARNS, M.D. Director, Student Health Service

The Medical School has made provision for the systematic care of undergraduate medical students according to the following plan:

1. *Preliminary Examination*—All new students will be examined during the first week of the semester. Notice of the date, time, and place of the examination will be announced to the classes and on the bulletin board. The passing of this physical examination is necessary before final acceptance of any student.

2. *Medical Attention*—Students in need of medical attention will be seen by the director, Dr. James R. Karns, in his office on the 8th floor University Hospital at 12 m. daily, except Saturday and Sunday. In case of necessity, students will be seen at their homes.

3. *Hospitalization*—If it becomes necessary for any student to enter the hospital during the school year, the school has arranged for the payment of part or all of his hospital expenses, depending on the length of his stay and special expenses incurred. This applies only to students admitted through the school physician's office.

4. *Physical Defects*—Prospective students are advised to have any known physical defects corrected before entering school in order to prevent loss of time which later correction might incur.

5. *Eye Examination*—Each new matriculant is required to undergo an eye examination at the hands of an oculist (Doctor of Medicine) within the three months immediately preceding his entrance to the School of Medicine.

6. *Limitations*—It is not the function of this service to treat chronic conditions contracted by students before admission, nor to extend treatment to acute conditions arising in the period between academic years, unless the school physician recommends this service.

GENERAL RULES

The right is reserved to make changes in the curriculum, the requirements for graduation, the fees and in any of the regulations whenever the university authorities deem it expedient. The School of Medicine will not be responsible for the students' personal property.

GRADING SYSTEM

Official grades are designated by these symbols:

<i>Symbol</i>	<i>Numerical Equivalent</i>	<i>Scholarship</i>
A	Superior	93-100
B	Good	87- 92
C	Fair	80- 86
D	Passing	75- 79
F	Failure	Below 75
I	Incomplete	_____
WF	Withdrew, failing	_____

The class standing of seniors only will be released. This standing will appear on senior grade reports sent out from the Registrar's office after graduation.

ADVANCEMENT AND GRADUATION

1. No medical student will be permitted to begin work for credit in any semester of any year who reports for classes later than one week after classes begin, except by permission of the Dean.

2. No student will be permitted to advance with unabsolved failures.

3. An average of C or better without failures in the year most recently completed is required for advancement to junior and senior standing and for graduation.

4. A student who in any one year has one failure together with grades of D in all other subjects, will be dropped from the rolls.

5. A student who has failures in two completed major subjects will be dropped from the rolls. The courses, Anat. 101. Gross Anatomy, Microanat. 101. Microanatomy, and Neuroanat. 101. Neuroanatomy, are considered a single major subject.

6. Students are required to attend all scheduled classes.

7. Should a student be required to repeat any year in any course, he must pay regular fees.

8. A student failing his final examinations for graduation at the end of the fourth year will be required to repeat the entire course of the fourth year and take examinations in such other branches as may be required, provided he is permitted to enter the school as a candidate for graduation.

9. The general fitness of a candidate for advancement and for graduation as

well as the results of his examinations will be taken into consideration by the faculty.

EQUIPMENT

10. At the beginning of the first year, all freshmen must possess a complete set of dissecting instruments. In addition, they must provide themselves with microscopes equipped with a mechanical stage and a substage lamp. Microscopes must meet the standards described below:

A standard microscope made by Bausch & Lomb, Leitz, Zeiss or Spencer fitted with the following attachments, meets the requirements.

16 mm., 10x, 0.25 N.A.—4.9 mm. working distance.

4 mm., 43x, 0.65 N.A.—0.6 mm. working distance.

1.8 mm., 97x, oil immersion, 1.25 N.A.—0.13 mm. working distance.

Oculars: 10x and 5x. Huygenian eyepieces.

Triple nose pieces with 16 mm., 4 mm., and 1.9 mm. 125 N.A. oil immersion lens.

Wide aperture stage with quick screw condenser and built on, but detachable, ungraduated mechanical stage. Substage condenser, variable focusing type 1.25 N.A. with iris diaphragm. A rack and pinion focusing device is preferred. Mirror-plane on one side, concave on the other. A carrying case is recommended.

Students are cautioned with respect to the purchase of used or odd-lot microscopes since some older instruments were equipped with a 4 mm. (high dry) objective whose N.A. is marked as 0.85 N.A. This objective has such a short working distance (0.3 mm.) that it is difficult or impossible to focus through thick cover glasses or the standard hemocytometer cover glass without breakage. All used microscopes are subject to inspection and approval by Dr. Frank H. J. Figge, Room 209, Bressler Building, 29 S. Greene Street. Such approval must be obtained before September 10. This inspection is usually not made during August.

11. Prior to beginning the second semester of the Freshman year, each student must provide himself with a stethoscope, sphygmomanometer and ophthalmoscope-otoscope. The Department of Physiology and the Division of Physical Diagnosis offer the following recommendations:

<u>Instrument</u>	<u>Recommended Type</u>	<u>Comment</u>
Stethoscope	Rieger-Bowles or	Purchase thick-walled rubber tubing. The wall thickness and internal diameter should be 1/8 inch each.
	Sprague-Bowles	
Sphygmomanometer	Tycos aneroid	Other types are also satisfactory, but this has proved itself for all around reliability and durability.
Ophthalmoscope-Otoscope	Welch-Allyn	With closed (diagnostic) otoscope head and No. 106 May ophthalmoscope head (not deluxe.)
	or National	With closed (diagnostic) otoscope head and May ophthalmoscope head.

The following equipment, which is frequently sold in a packaged kit with the above instruments will be needed for second year work in physical diagnosis:

Tuning fork	256 cycles per second	The large aluminum alloy type is preferred to the small stainless steel variety.
Reflex hammer	any simple type	Avoid specialized instruments with built in pins, brushes, etc.

12. Students in the second year class are also expected to provide themselves with a hemocytometer (Spencer Bright-Line). Third and fourth year students are required to provide themselves with short white lapel coats. Three button, 8 ounce sanforized duck coats are satisfactory.

STATE QUALIFYING CERTIFICATES

13. Candidates for admission who live in or expect to practice medicine in Pennsylvania or New Jersey should apply to their respective State Boards of Education for Medical Student Qualifying Certificates. These certificates should be filed with the Committee on Admissions. Candidates from New York must have completed at least two years of approved liberal arts study including courses of 6 semester hours of English, 6 hours of Biology or Zoology, 6 hours of Physics, 6 hours of General Chemistry and 3 hours of Organic Chemistry in order to be eligible for admission to the medical licensing examination in New York.

14. Each new matriculant in each class is required to present to the Committee on Admissions a certificate from an oculist, (a graduate in medicine) that the matriculate's eyes have been examined under a cycloplegic and are in condition, with or without glasses as the case may be, to endure the strain of close and intensive reading.

It is required that this examination be completed within three months prior to registration and that the certificate be mailed to the Committee on Admissions not later than one month before registration.

AWARDING OF COMBINED DEGREES

15. Students entering the School of Medicine on a three-year requirement basis from colleges which usually grant a degree on the successful completion of the first year of medicine, are restricted by the following regulations:

- a—The candidate must present a certificate from his college or university that he has absolved the quantitative and qualitative premedical requirements for this degree.
- b—The candidate must acquire an average of C or better without failures for the work of his first year in the School of Medicine.
- c—The Dean of the School of Medicine reserves the right to withhold his recommendation that a bachelor's degree be conferred at a commencement which occurs before the official release of first-year medical grades.

TRANSCRIPTS

16. Students will be provided the first transcript of record without charge. After the first copy has been issued single copies will cost one dollar. When two or more copies are requested at the same time the first copy will cost one dollar, additional copies fifty cents each. Requests for transcripts must be filed with the Registrar's Office, University of Maryland, 522 West Lombard Street, Baltimore-1, Maryland.

CHANGES OF ADDRESS

17. Students are required to give the Dean's Office and the Registrar's Office prompt notice of change in address.

PARKING

18. Students are not permitted to use the university parking lots.

HOUSING

There are no housing or living accommodations on the campus of the medical school.

LIBRARY REGULATIONS

Loan Regulations

Loan periods have been worked out according to demand for and protection of different types of material.

Two-Week Loans: All books except those on reserve.

One-Week Loans: All journals except the latest number (which does not circulate), and those on reserve.

Overnight Loans: Books and journals on reserve.

(3:50 p.m.-2 p.m.)

Special Rules for Books on Reserve:

Students whose names appear on the check-list for the Mercy Hospital section will be granted the necessary hours to return reserve books.

Overnight books may be reserved in advance only within the week in which they will be used. Books may be reserved on Saturday for the following Monday.

Overnight books may not be reserved two successive nights by the same person.

Advance reserves will be held until one hour before closing.

Fines

Fines are imposed not to acquire money, but to assure equal access to books.

Two-Week Loans: 5¢ per day.

One-Week Loans: 5¢ per day.

Overnight Loans: 15¢ for first hour; 5¢ for each additional hour or fraction thereof.

Lost Books: List price of the book. (Lost books should be reported at once).

All books must be returned, lost books replaced or paid for, and fines paid before a student can finish the year in good standing.

In fairness to all concerned, these rules must be enforced without exception.

CERTIFICATION FOR STATE BOARD AND NATIONAL BOARD EXAMINATIONS

No student will be certified to State Board or National Board examiners who has unabsolved failures in subjects taken during the academic period covered by these examinations.

WITHDRAWALS AND REFUNDS

Formal Withdrawal Procedures

Students over 21 years of age desiring to leave the School of Medicine at any time during the academic year are required to file with the Dean a written application for withdrawal. In addition, the student must secure an "honorable dismissal release" form from the Dean's secretary, and return this to the Dean's office appropriately signed by representatives of the departments listed thereon, together with his "matriculation certificate."

If these procedures are not completed, the student will not be entitled to honorable dismissal nor to refund of fees.

Students under 21 years of age, must supplement the procedures previously described with the written consent of their parents or guardians.

Academic Standing On Withdrawal

Students who voluntarily withdraw during an academic semester will be given no credit.

Students are not permitted to resort to withdrawal in order to preclude current or impending failures. Their standing on withdrawal will be recorded in the registrar's office.

Students who withdraw from the School of Medicine, must apply to the Committee on Admissions for readmission, unless other arrangements have been consummated with the Dean's written consent.

Refunds on Withdrawal

Students who are eligible to honorable dismissal will receive a refund of current charges, after the matriculation fee has been deducted, according to the following schedule:

<i>Period elapsed after instruction begins.</i>	<i>Percentage refundable</i>
Two weeks or less.....	80%
Between two and three weeks.....	60%
Between three and four weeks.....	40%
Between four and five weeks.....	20%
After five weeks.....	0

PRIZES

THE FACULTY PRIZE

The Faculty will award the Faculty Gold Medal and Certificate and five Certificates of Honor to six of the first ten highest ranking candidates for graduation who, during the four academic years, have exhibited outstanding qualifications for the practice of medicine.

THE DR. A. BRADLEY GAITHER MEMORIAL PRIZE

A prize of \$25.00 is given each year by Mrs. A. Bradley Gaither as a memorial to the late Dr. A. Bradley Gaither, to the student in the senior class doing the best work in genito-urinary surgery.

THE WILLIAM D. WOLFE MEMORIAL PRIZE

(Value \$100.00 each)

A certificate of proficiency and a prize of \$100.00 will be awarded each year until the fund is dissipated, to the graduate selected by the Advisory Board of the Faculty showing greatest proficiency in Dermatology.

THE DR. LEONARD M. HUMMEL MEMORIAL AWARD

A gold medal and certificate of proficiency will be awarded annually, as a memorial to the late Dr. Leonard M. Hummel, to the graduate selected by the Advisory Board of the Faculty who has manifested outstanding qualifications in Internal Medicine.

SCHOLARSHIPS

All scholarships are assigned for one academic year, unless specifically re-awarded on consideration of an application.

Official application forms are obtainable at the Dean's office, where they must be filed not later than May 15th for the ensuing academic year.

THE DR. SAMUEL LEON FRANK SCHOLARSHIP

(Value \$100.00)

This scholarship was established by Mrs. Bertha Rayner Frank as a memorial to the late Dr. Samuel Leon Frank, an alumnus of this university.

It is awarded by the Trustees of the Endowment Fund of the University each year upon nomination by the Advisory Board of the Faculty "to a medical student of the University of Maryland, who in the judgment of said Council, is of good character and in need of pecuniary assistance to continue his medical course."

This scholarship is awarded to a second, third or fourth year student who has successfully completed one year's work in this school. No student may hold this scholarship for more than two years.

THE CHARLES M. HITCHCOCK SCHOLARSHIPS

(Value \$100.00 each)

Two scholarships were established from a bequest to the School of Medicine by the late Charles M. Hitchcock, M.D., an alumnus of the university.

These scholarships are awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Advisory Board of the Faculty, to students who have meritoriously completed the work of at least the first year of the course in medicine, and who present to the Board satisfactory evidence of a good moral character and of inability to continue the course without pecuniary assistance.

THE RANDOLPH WINSLOW SCHOLARSHIP

(Value \$100.00)

This scholarship was established by the late Randolph Winslow, M.D., LL.D.

It is awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Advisory Board of the Faculty, to a "needy student of the Senior, Junior, or Sophomore Class of the Medical School."

"He must have maintained an average grade of 85% in all his work up to the time of awarding the scholarship."

"He must be a person of good character and must satisfy the Faculty Board that he is worthy of and in need of assistance."

THE DR. LEO KARLINSKY MEMORIAL SCHOLARSHIP

(Value \$125.00)

This scholarship was established by Mrs. Ray Mintz Karlinsky as a memorial to her husband, the late Dr. Leo Karlinsky, an alumnus of the university.

It is awarded annually by the Trustees of the Endowment Fund of the University, upon the nomination of the Advisory Board of the Faculty, to "a needy student of the Senior, Junior or Sophomore Class of the Medical School."

He must have maintained in all his work up to the time of awarding the scholarship a satisfactory grade of scholarship.

He must be a person of good character and must satisfy the Advisory Board that he is worthy of and in need of assistance.

THE CLARENCE AND GENEVRA WARFIELD SCHOLARSHIPS

(Value \$300.00 each)

There are five scholarships established by the regents from the income of the fund bequeathed by the will of Dr. Clarence Warfield.

Terms and Conditions: These scholarships are available to students of any of the classes of the course in medicine. Preference is given to students from the counties of the state of Maryland which the Advisory Board of the Faculty may from time to time determine to be most in need of medical practitioners.

Any student receiving one of these scholarships must agree, after graduation and a year's internship, to undertake the practice of medicine, for a term of two years, in the county to which the student is accredited, or in a county selected by the Board. In the event the recipient is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Board, the money advanced by the regents shall be refunded by the student.

THE ISRAEL AND CECELIA E. COHEN SCHOLARSHIP

(Value \$150.00)

This scholarship was established by the late Eleanor S. Cohen in memory of her parents, Israel and Cecelia E. Cohen. Terms and conditions: This scholarship will be available to students of any one of the classes of the course in medicine; preference is given to students of the counties in the state of Maryland which the Advisory Board of the Faculty may from time to time determine to be most in need of medical practitioners. Any student receiving one of these scholarships must, after graduation and a year's internship, agree to undertake the practice of medicine for a term of two years in the county to which the student is accredited, or in a county selected by the council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Board, the money advanced by the regents shall be refunded.

THE DR. HORACE BRUCE HETRICK SCHOLARSHIP

(Value \$250.00)

This scholarship was established by Dr. Horace Bruce Hetrick as a memorial to his sons, Bruce Hayward Hetrick and Augustus Christian Hetrick. It is to be awarded by the Advisory Board of the Faculty to a student of the senior class.

THE HENRY ROLANDO SCHOLARSHIP

(Value approximately \$250.00)

The Henry Rolando Scholarship was established by the Board of Regents of the University of Maryland from a bequest to the Board by the late Anne H. Rolando for the use of the Faculty of Medicine.

This scholarship will be awarded each academic year on the recommendation of the Advisory Board of the Faculty to a "poor and deserving student."

THE READ SCHOLARSHIPS

The sum of \$500.00 is now available to cover two (2) scholarships in the amount of \$250.00 each for a given academic year. Beginning in 1945, these scholarships were made possible by a donation from the Read Drug and Chemical Company of Baltimore, Maryland. Two students are to be selected by the Dean of the School of Medicine in collaboration with the Scholarship and Loan Committees of the Medical School with the provision that the students selected shall be worthy, deserving students, residents of the State of Maryland.

LOAN FUNDS

W. K. KELLOGG FUND

This loan fund was established in the academic year 1942 with money granted by the W. K. Kellogg Foundation. The interest paid on the loans, together with the principal of the fund as repaid, will be used to found a rotating loan fund. Loans will be made on the basis of need, character and scholastic attainment.

FACULTY OF MEDICINE LOAN FUND

A Faculty of Medicine Loan Fund was established with money derived from the bequest of Dr. William R. Sanderson, Class 1882, and the gift of Dr. Albert Stein, Class 1907 and a gift of Dr. Frank A. Merlino, Class 1928. Loans will be made on the basis of need, character, and scholastic ability.

THE EDWARD L. MEIERHOF LOAN FUND

This bequest was established through a grant from Dr. Edward L. Meierhof, who was graduated from the Medical School in 1881. The principal of this fund will be used as a rotating loan fund from which loans will be made to regularly enrolled students of the School of Medicine on the basis of need, character and scholastic attainment.

THE JAY W. EATON LOAN FUND

This fund was established by the local chapter of the Nu Sigma Nu Fraternity in memory of Jay W. Eaton of the class of 1946.

Beginning in 1946 an interest-free loan of \$100.00 will be made to some worthy member of the senior class, on recommendation of the Scholarship Committee of the School of Medicine. This loan is to be credited to the tuition fee of the appointed student and is to be repaid by the student within four years following his graduation.

THE SENIOR CLASS LOAN FUND

The senior class of 1945 originated this fund which will accumulate by subscription from among members of each senior class.

The conditions of the agreement provide that the Dean of the School of Medicine award a loan of \$100.00 to a needy member of the senior class on the recommendation of a self-perpetuating committee of two members of the faculty.

Loans from this fund are to be credited to the tuition fee of the appointed student and are to be repaid within five years from the date of graduation.

THE WILLIAM AND SARAH KRAUT MEMORIAL STUDENT LOAN FUND

This loan fund was established in 1954 by a gift from Dr. Arthur M. Kraut as an expression of his appreciation for what the School of Medicine has meant to him and as a memorial to his parents.

The Scholarship and Loan Committee of the School of Medicine shall be the sole and final judge in matters of administration and operation of the fund.

Loans from the fund and the terms of repayment are unrestricted and are left to the discretion of the committee.

THE STUDENT AID FUND FOR SENIORS

This fund was originated by the class of 1950 and is sponsored by the senior class of each succeeding year. The purpose of the fund is to provide financial aid for any deserving member of the senior class. All members of the senior class are eligible to apply for a loan. Applications may be filed at the office of the Dean.

The conditions of the agreement provide that the Scholarship and Loan Committee award loans to members of the senior class on recommendation of a self-perpetuating committee of two members of the faculty who may call on the president of the senior class for assistance, if desired.

Loans from this fund are made on a non-interest bearing basis and are payable within five years. A signed note is required. No co-signers are necessary.

ORGANIZATION OF THE CURRICULUM

The curriculum is organized under fifteen departments.

1. Anesthesiology.
2. Anatomy (including Histology, Embryology, and Neuro-anatomy).
3. Biological Chemistry.
4. Medicine (including Medical Specialties).
5. Microbiology.
6. Obstetrics and Gynecology.
7. Ophthalmology.
8. Pathology.
9. Pediatrics.
10. Pharmacology.
11. Physiology.
12. Preventive Medicine and Rehabilitation.
13. Psychiatry.
14. Radiology.
15. Surgery (including Surgical Specialties).

The instruction is given in four academic years of graded work.

Several courses of study extend through two years or more, but in no case are the students of different years thrown together in the same course of teaching.

The first and second years are devoted largely to the study of the structures, functions and chemistry of the normal body. Laboratory work occupies most of the student's time during these two years.

Some introductory instruction in medicine and surgery is given in the second year. The third and fourth years are almost entirely clinical.

A special feature of instruction in the school is the attempt to bring together teacher and student in close personal relationship. In many courses of instruction the classes are divided into small groups and a large number of instructors insures attention to the requirements of each student.

In most courses the final examination as the sole test of proficiency has disappeared and the student's final grade is determined largely by partial examinations, recitations and assigned work carried on throughout the course.

INTERDEPARTMENTAL COURSES

ID. 1. Man and His Environment. First year. 64 hours.

Distinguished leaders in American medicine participate in the presentation of these weekly sessions. The course is broad in scope, stressing the cultural aspects of anthropology with emphasis directed toward the sociological, psychological, physiological, and geneological relationships of man and his surroundings. All departments of the School of Medicine participate.

ID. 2. Introduction to Clinical Medicine. Second year. 64 hours.

The techniques of obtaining medical histories are taught by lectures, demonstrations, and small group exercises. A concentrated effort is made to emphasize and illustrate the pathologic-physiology accounting for the pertinent symptoms and signs searched for in every medical history and physical examination. The Departments of Medicine, Obstetrics and Gynecology, Pediatrics, Preventive Medicine and Rehabilitation, Psychiatry, Radiology, and Surgery participate in the instruction.

ID. 3. Physical Diagnosis. Second year. Second semester. 32 hours.

This course implements ID. 2 and provides the student with bedside instruction in physical diagnosis. Small tutorial groups are formed each under the direction of an instructor. In the first five weeks, experience in physical examination of normal individuals is given one afternoon weekly. During the subsequent 12 weeks, students become acquainted with abnormal signs through examination of hospitalized patients. For the first five of these 12 weeks, the Cardiology Division gives instruction in the physical examination of the heart. Thereafter, sections are assigned in rotation to the Division of Neurology and the Department of Pediatrics for instruction in these specialties.

ID. 4. Interdepartmental Seminars. Third and Fourth years. 64 hours.

These seminars are designed to present, during the course of two academic years, a correlated consideration of the major disease processes encountered in the practice of medicine. All departments cooperate to provide an intensive presentation designed to elucidate the clinical and basic science aspects of the diseases under discussion.

ANATOMY

Professors Figge (Head of Department), Brantigan, Nauta, Uhlenhuth;
Associate Professors Krah1, Mack, Walker; Assistant Professors
Leveque, Mech, Kuypers, Settle; and Staff.

Anat. 101. Gross Anatomy. First year. First semester. 256 hours.

This course gives the student an opportunity to develop a basic concept of the morphology of the human body. It is closely interwoven with the study of neuroanatomy, histology, and embryology, and some time is devoted to roentgen anatomy. The entire human body is dissected.

Microanat. 101. Microanatomy. First year. First semester. 144 hours.

This course presents an integrated study of the histology and embryology of the human body. An attempt is made to correlate this with gross anatomy as well as other subjects in the medical curriculum. Special emphasis is placed on the dynamic and functional aspects of the subject.

Neuroanat. 101. Neuroanatomy. First year. First semester. 96 hours.

The study of the detailed anatomy of the central nervous system is coordinated with structure and function of the entire nervous system. The dissection of the human brain and the examination of stained microscopic sections of various levels of the brain stem are required.

Anat. 103. Clinical Anatomy. Second year. Second semester. 96 hours.

The course is designed to bridge the gap between basic anatomy and clinical or applied anatomy. The study of surface anatomy is correlated with physical diagnosis. Students have an opportunity to perform a detailed anatomical dissection with emphasis upon clinical application.

For Graduates

The graduate degrees offered by the Department of Anatomy are the Master of Science and the Doctor of Philosophy.

Anat. 201. General Anatomy of the Human Body (8). Same course as 101, but on a more advanced level. It can be taken by graduate as well as postgraduate students. Laboratory fee, \$15.00.

Anat. 202. The Anatomy of the Human Pelvis (2). Fifteen periods of four hours each during the first semester, mornings by arrangement. This course is open to graduate students, medical students, and postgraduate students.

Anat. 203. Practical Anatomy (4). Same course as Anat. 103 but on a more advanced level.

Anat. 204. Fetal and Infant Anatomy (2). Fifteen periods of three hours each, every Thursday from 2:00 to 5:00 p.m. for 15 weeks during the first semester. This course is open to graduate students and postgraduates interested in Pediatrics.

Anat. 205. Research in Anatomy. Maximum credits, 12 per semester. Research work may be taken in any one of the branches of Anatomy.

Neuroanat. 201. Human Neuroanatomy (4). Same course as Neuroanat. 101, but with additional work of a more advanced nature. Laboratory fee, \$10.00.

Neuroanat. 202. Research in Neuroanatomy. Maximum credits, 12. Research work involving the central or peripheral nervous system.

Microanat. 201. Mammalian Histology (6). Same course as Microanat. 101, but with additional work of a more advanced nature. Laboratory fee, \$10.00.

Microanat. 202. Normal and Typical Growth. Lectures in Problems of Growth (2). Two hours per week, time to be arranged. Sixteen weeks, second semester.

Microanat. 203. Research. Maximum credits, 12. Research work may be taken in any one of the branches which form the subject of Microanatomy (including cancer research).

ANESTHESIOLOGY

Associate Professor Hackett (Acting Head of Department); Professor Nelson; Associate Professors Phillips, Safar; and Staff.

During the pre-clinical years and the third year, the Department of Anesthesiology presents several lectures in courses taught by the Departments of Pharmacology and Surgery. These lectures are intended to show the

application of basic sciences to the clinical practice of anesthesiology and how the various facets of the clinical entity under discussion affect the choice of preanesthetic medication, the anesthetic agent, and the technique to be employed.

Anes. 101. Introduction to Anesthesiology. Fourth year. 35 hours.

Each senior student spends a week, or its time equivalent, in the operating rooms of University Hospital administering anesthesia and observing. Informal group meetings are held to emphasize factors affecting the anesthetic management of patients observed and to discuss the more common anesthetic problems of general practice.

BIOLOGICAL CHEMISTRY

Professor Schmidt (Head of Department); Associate Professors Herbst, Vanderlinde; Assistant Professor Vasington; and Staff.

Biochem. 101. Principles of Biochemistry. First year. Second semester. 208 hours.

This course is designed to present the principles of biological chemistry and to indicate their applications to the clinical aspects of medicine. The phenomena of living matter and its chief ingredients, secretions, and excretions are discussed in lectures and conferences and examined experimentally. Training is given in biochemical methods of investigation.

For Graduates

Graduate degrees offered by the Department of Biological Chemistry are the Master of Science and Doctor of Philosophy.

Biochem. 201. Principles of Biochemistry (8). Same course as Biochem. 101, but on a more advanced level for graduate students. Laboratory fee, \$20.00.

Biochem. 202. Special Topics in Biochemistry (1, 1). Prerequisite, Biochem. 101 or 201.

Biochem. 203. Research. Maximum credits, 12. Credit proportioned to extent and quality of work accomplished.

Biochem. 204, 205. Seminar (1, 1). First and second semesters.

Biochem. 206. Enzymes and Metabolism (2-3). First semester.

Biochem. 207. Biochemical Preparation (1-4). Credit according to work done.

Biochem. 208. Chemistry and Metabolism of the Steroid Hormones (2-3).

MEDICINE

Professors Woodward (Head of Department), Carey, Fisher, Krause, Love, Peters, Robinson, Jr., Sacks, Van Buskirk; Associate Professors Andersch, Bubert, Cotter, Eastland, Gundry, Langeluttig, Lisansky, Marriott, S. Morrison, Mirick, Revell; Assistant Professors Beacham, Carrol, Chinard, Connor, Dickey, Ebeling, Fort, Jacobson, Karns, Leach, Legge, Legum, Muller, Parker, Reiter, L. Scherlis, S. Scherlis, Serra, S. Smith, Snyder, Spurling, Storey, Wiswell, Workman; and Staff.

Med. 102. Clinical Clerkship in Medicine. 3rd year.

This course consists of a clinical clerkship on the medical wards of the University Hospital for a period of 8 weeks. Students are responsible, under supervision, for the history, physical examination, laboratory examinations, and progress notes of assigned cases. They also attend ward rounds and conferences in general medicine with the Resident Staff, Attending Physicians, and Chief of Service. For an additional 8 weeks, students are assigned to the Baltimore City Hospitals for work in the General Medical Outpatient Department. They also serve as clinical clerks on the Chronic Disease Wards and attend ward rounds and teaching conferences in General Medicine, Tuberculosis, Neurology, and Radiology.

Med. 103. The Principles of Medicine. Third year. 16 hours.

This course consists of assignments in standard texts and current periodicals with approximately 8 examinations covering the specified material. Concurrently, lectures are given in General Medicine, Neurology, Clinical Medicine, and Medical Jurisprudence.

Med. 104. Advanced Clinical Clerkship in Medicine. Fourth year.

Clinical clerkship on the medical wards of University Hospital, Mercy Hospital, and the Fort Howard Veterans Administration Hospital for 4 weeks. An additional 4 week period is spent in the Medical Outpatient Department where instruction is given in General Medicine and the medical specialties. During this tour the senior student makes home visits on selected patients, participates in the workup of chronically ill patients at the Montebello Chronic Disease Hospital and attends consultative rounds in cardiology, infectious diseases, gastroenterology, radioisotopes, neurology, hematology, endocrinology, and pulmonary diseases on the wards of the University Hospital.

Summer Fellowships.

Students who have completed their Junior year are encouraged to seek additional training during the summer months preceding their Senior studies. This training may be obtained in one of several ways. A limited number of students are appointed to Clinical Clerkships on the Medical Wards of the University Hospital. In these positions, they are responsible, under supervision, for the history, physical examination, laboratory studies, and progress notes of assigned cases.

In addition, certain of the medical subspecialty divisions provide specialized training for students as Summer Fellows during the summer months. The applicant is encouraged to apply directly to the Division Head. These fellowships enable the student to become acquainted with the various specialized diagnostic and research techniques, the clinical problems, and therapeutic regimens peculiar to each of the medical subspecialties. Summer Fellowships are available in the following Divisions: Cardiology, Clinical Pathology (2 appointments), Dermatology (2 appointments), Endocrinology, Gastroenterology, Hypertension, Infectious Diseases (2 appointments), Legal Medicine, Neurology, and Radioisotopes (1 appointment). Interested applicants should contact the respective Division Head prior to January 1 of the year in which the fellowship is desired.

Postgraduate Fellowships.

These are available in the various specialties of medicine. For details see specific division.

The Department of Medicine, for administrative purposes, is divided into eleven Divisions. Each of these Divisions participates in the major courses taught by the Department. In addition, a number of specialized courses and postgraduate fellowships are offered by the Divisions.

DIVISION OF ARTHRITIS

Drs. Marriott (Head of Division), Furnari Kochman, and Staff.

Med. 105. Division Rounds. Third year. Elective.

Med. 105a. Outpatient Clinic. Fourth year. Elective.

Weekly arthritis outpatient clinics and attendance at weekly arthritis rounds.

DIVISION OF CARDIOLOGY

Drs. Love, Jr. (Head of Division), Leach, L. Scherlis, S. Scherlis, Swisher, Townshend, Van Lill, III, and Staff.

Physiol. 101. Principles of Physiology. First year.

Lectures and demonstrations in the Electrical Activity of the Heart in collaboration with the Department of Physiology.

ID. 3. Physical Diagnosis. Second year. Second semester.

The Division of Cardiology participates in presenting this course.

Med. 106. Electrocardiology. Third and Fourth years. 16 hours. Elective.

This is an introductory course consisting of illustrated group lectures and exercises.

Traineeships.

These are available to selected postgraduate applicants. The Trainee participates in the activities of the Division and receives a financial stipend. The traineeship begins July 1st of each year. Application is made through the Head of the Division and must be completed by October of the preceding year.

DIVISION OF CLINICAL PATHOLOGY

Drs. Sacks (Head of Division), Andersch, Spurling, A. Band, DeHoff, S. Miller, Funk, Hellen, Esmond, Rothfeld, and Staff.

Med. 101. Basic Clinical Pathology. Second year. 128 hours.

The course is designed to train the student in the performance and interpretation of the fundamental laboratory procedures used in clinical diagnosis. During the first semester the basic techniques of hematology as well as clinical aspects of blood diseases are taught. Blood group immunology in relation to transfusions is also covered. In the second semester the performance and interpretation of tests used in the diagnosis of renal, hepatic, gastric, pancreatic, and metabolic diseases are considered. A review, with clinical applications, of acid-base balance and electrolyte disturbances is included. Methods of examination of cerebrospinal fluid, transudates, and exudates are taught. Elements of clinical parasitology complete the work in this semester.

Each student provides his own microscope and blood counting equipment. A completely equipped locker is provided for each student.

Med. 102a. Advanced Clinical Pathology. Third year. 8 hours.

Seminar discussions of diagnostic laboratory procedures in selected diseases are given during the medicine quarter. Each student is assigned a completely equipped locker adjacent to the wards for use during the clinical clerkships. Microscope and blood counting equipment must be provided by the student.

Postgraduate Fellowships.

Two fulltime clinical and research fellowships in hematology are available to applicants who have had a minimum of one year internship. A financial stipend is provided. Application should be made to the Head of the Division.

DIVISION OF DERMATOLOGY

Drs. H. M. Robinson, Jr. (Head of Division), Ellis, Bereston, R. C. V. Robinson, Shapiro, Zeligman, Bundick, M. Cohen, Hollander, Bacharach, Strahan, Ludwig, and Staff.

Med. 107. Introduction to Dermatology. Third year.

Students are given assigned reading on the more common skin eruptions. Six two hour clinical sessions are held for each quarter of the Junior class. Individual instruction is given by one of the senior staff members emphasizing the pertinent aspects of differential diagnosis.

Med. 108. Practical Exercises in Dermatology. Fourth year.

Groups of twelve students spend twenty hours in the outpatient department where they are given individual instruction in the diagnosis and treatment of cutaneous lesions. Emphasis is laid on the relationship of various eruptions to systemic conditions. Instruction is given in mycologic technique. Six one hour lecture demonstrations are given to the entire Senior class, two of these are panel discussions with the senior members of the dermatology staff.

DIVISION OF GASTROENTEROLOGY

Drs. Ebeling (Head of Division), S. Morrison, Feldman, Morgan, Flynn, Hooper, and Kassel.

ID. 2. Introduction to Clinical Medicine. Second year.

The Division of Gastroenterology participates in the presentation of this course.

DIVISION OF HYPERTENSION

Drs. Revell, Jr. (Head of Division), Cowley, Borges, and Staff.

Med. 109. Conferences on Hypertension. Third year. Elective.

Conferences on pathological-physiology of hypertension, sites of action of antihypertensive drugs, methods of screening patients with hypertension, and choice of therapy in hypertensive patients.

Med. 110. Outpatient Clinic and Division Rounds. Fourth year. Elective.

Weekly clinics on patients with hypertension and attendance at weekly rounds.

DIVISION OF INFECTIOUS DISEASES

Drs. Parker (Head of Division), M. J. Snyder, McCrumb, Liu, and Staff.

Postgraduate Fellowships.

The Division sponsors a Fellow who receives instruction in laboratory techniques and clinical investigation. Fellows participate in all functions of the Division, including collaboration in investigative problems. A financial stipend is provided. Application is made through the Head of the Division.

DIVISION OF LEGAL MEDICINE

Drs. Fisher (Head of Division), Freimuth, Lovitt, Jr., Guerin, Lindenberg, and Staff.

Med. 111. Practical Aspects of Medical Practice. Fourth year. 7 hours.

The Division arranges a series of lectures covering medical ethics, economics, record keeping, residency training opportunities, and some considerations about starting in private practice. An attempt is made in this series to stress those features which will be immediately useful business-wise to the young physician.

For Graduates

The Division of Legal Medicine offers courses leading to the degrees of Master of Science and Doctor of Philosophy in Toxicology.

Leg. Med. 201. Legal Medicine (1). One hour of lecture for twelve weeks, 4 hours assigned reading, first semester.

Leg. Med. 202. Toxicology (10). Two hours lecture, 8 laboratory hours per week for 1 year.

Leg. Med. 203. Gross Pathologic Anatomy as Related to Toxicology (2). Two hours per week for one year.

Leg. Med. 204. Research in Toxicology leading to preparation of a Thesis for the M.S. (6). Minimum credits, six.

Leg. Med. 205. Research in Toxicology leading to preparation of a Thesis for the Ph.D. (30).

Postgraduate Fellowships.

A limited number of physicians with a minimum of one year of training in pathologic anatomy are appointed as Research Fellows for training and research in medicolegal pathology. This training is approved by the American Board of Pathology towards the requirements for admission to the examinations in pathologic anatomy.

DIVISION OF NEUROLOGY

Drs. Van Buskirk (Head of Division), Lerner, Merrill, Teitelbaum, Cotter, Fearing, Lombardo, and Staff.

Med. 112. Introduction to Clinical Neurology. Second year. 15 hours.

Lectures in neurologic diagnosis are presented, stressing correlation of anatomy and physiology of the nervous system with clinical neurology.

ID. 3. Physical Diagnosis. Second year. Second semester.

The Division participates in presenting this course.

DIVISION OF PHYSICAL DIAGNOSIS

Drs. Marriott (Head of Division), Beacham, Legum, Reiter, Borges, Helfrich, Van Lill, III, Wilfson, Keown, Sherrill, Anderson, Esmond, Friedman, and Stockard.

ID. 2. Introduction to Clinical Medicine. Second year.

The Division participates in presenting this course.

ID. 3. Physical Diagnosis. Second year. Second semester. 32 hours.

This course implements ID. 2 and provides the student with bedside instruction in

physical diagnosis. Small tutorial groups are formed each under the direction of an instructor. In the first five weeks, experience in physical examination of normal individuals is given one afternoon weekly. During the subsequent twelve weeks, students become acquainted with abnormal signs through examination of hospitalized patients. For the first five of these twelve weeks, the Division of Cardiology gives instruction in the physical examination of the heart. Thereafter, sections are assigned in rotation to the Division of Neurology and the Department of Pediatrics for instruction in these specialties.

DIVISION OF RADIOACTIVE ISOTOPES

Drs. Workman (Acting Head of Division), Dennis, and Staff.

Physiol. 101. Principles of Physiology. First year.

In cooperation with the Department of Physiology, two orientation lectures on Radioisotopes in Medicine are presented and 8 laboratory sessions of 4 hours each are devoted to the demonstration of radiolotope techniques in the study of thyroid function and estimation of blood volume.

Med. 113. Isotope Clinic. Fourth year. Elective.

Postgraduate Fellowships.

One postgraduate fellowship is available. Applications are made to the Division Head.

MICROBIOLOGY

Professor Wisseman (Head of Department); Associate Professor Steers;
Assistant Professors A. G. Smith, M. J. Snyder, Sweet; and Staff.

Microbiol. 101. Medical Microbiology and Immunology. Second year. First semester. 180 hours.

This course is intended to supply the basic information on microbial agents and immunologic mechanisms necessary to understand infectious diseases, public health, and diseases of immunologic origin. Properties of microorganisms are considered in relation to pathogenesis of infections, mechanisms of tissue damage, and host defense mechanisms. Bacterial, fungal, viral, and rickettsial agents are studied in both lecture and laboratory.

For Graduates

The Department of Microbiology offers the degree of Doctor of Philosophy. While the degree of Master of Science may be offered in special instances, priority for research facilities will be given aspirants to the Ph.D. degree.

Microbiol. 201. Medical Microbiology and Immunology (8). This course is built upon Microbiol. 101 by the addition of advanced supplementary reading and laboratory exercises. Laboratory fee, \$10.00.

Microbiol. 203. Bacterial Physiology (3). Three lectures per week, but no laboratory, first semester.

Microbiol. 204. Research. Maximum credits, 12 hours per semester.

Microbiol. 205. Genetics of Microorganisms (1). One lecture per week, second semester.

Microbiol. 206, 207. Seminar (1,1). One session per week, first and second semesters.

Microbiol. 208. Medical Mycology (2). One lecture and one laboratory per week, second semester. Laboratory fee, \$10.00. Registration by consent of instructor.

OBSTETRICS AND GYNECOLOGY

Professors Haskins (Head of Department), Kaltreider; Associate Professors Cornbrooks, Reese, Siegel; Assistant Professors Brady, Compton, Diehl, Diggs, McNally, Molumphy, Morris, Savage, E. P. Smith; and Staff.

Ob-Gyn. 101. Clinical Clerkship in Obstetrics and Gynecology. Third year.

Students are assigned to Obstetrics and Gynecology for a period of four weeks. As clinical clerks, they participate in the original diagnostic studies, delivery, and pelvic surgical procedures of allocated hospitalized patients. Postoperative and postpartum observations are also made.

Daily rounds and departmental conferences with House Officers and Attending Staff aid the student in the interpretation and correlation of his observations and the various therapeutic regimens. Specific allotments of time are made for instruction in Pathology and Basic Science as it relates to Obstetrics and Gynecology. Manikin instruction is provided. Thirty gynecologic lectures are given throughout the school year to the entire class.

Ob-Gyn. 102. Advanced Clinical Clerkship in Obstetrics and Gynecology. Fourth year.

Students are assigned to Obstetrics and Gynecology for a period of four weeks. Small groups of students attend Baltimore City Hospitals for two weeks, in rotation. Participation in deliveries, and prepartum and postpartum care are accomplished on a high level of individual student responsibility. Rounds and other organized instruction complete the obstetrical assignment of the student.

During the remaining two weeks, the student is assigned to the University Hospital Outpatient Department. Instruction is oriented toward obstetric and gynecologic office procedures. As a clinical clerk, the student examines obstetric and gynecologic patients and follows them. He attends the several specialty clinics, where specific instruction in endocrinology, female sterility, and gynecologic cancer is given.

OPHTHALMOLOGY

Associates Brumback, Kemler, Kremen, and R. A. Smith; Instructors Cross and H. B. Wilson; Assistant Ozazewski.

Ophthal. 101. Introduction to Ophthalmology. Third year. 20 hours.

The anatomy and physiology of the eye are reviewed and methods used in making various ophthalmologic examinations are discussed. Weekly section work, demonstrating the use of the ophthalmoscope, with the aid of kodachrome transparencies of the fundus oculi is carried on during the entire session at the Baltimore Eye, Ear, and Throat Hospital.

Ophthal. 102. Ophthalmology Clinic. Fourth year.

Clinics and demonstrations in diseases of the eye.

PATHOLOGY

Professor Spencer (Head of Department); Associate Professors Merkel, Reimann, Wagner, Weinberg, Wright; Assistant Professor A. Goldstein; and Staff.

Path. 101. General Pathology. Second year. Second semester. 208 hours.

This course includes the study of the basic principles of pathology with their application to the various organs and systems of the body. Laboratory instruction is based on the study of prepared slides (loan collection) and fresh and preserved gross material. Kodachrome slides are also utilized.

Path. 102. Correlative Pathology. Third year. 72 hours.

The class is divided into groups and instruction is carried out in sectional laboratories where prepared specimens, complete cases including clinical histories, sections, and appropriate Kodachrome slides are available for study. The course is integrated so that while the student is assigned to one or another of the clinical divisions he studies corresponding diseases in the laboratory. Correlation is stressed.

Path. 103. Autopsies. Third year.

Small groups of students are required to attend autopsies conducted in the University Hospital. The student participates in discussions and prepares proper protocols.

Path. 104. Clinical Pathologic Conferences. Third and Fourth years. 36 hours.

The exercises are held in collaboration with the various clinical departments. Histories are presented, differential diagnoses are discussed, and the clinical course is correlated with the autopsy findings.

PEDIATRICS

Professors Bradley (Head of Department), Joslin; Associate Professors Bessman, Finkelstein, F. B. Smith; Assistant Professors Baldwin, Besterbeurtje, Fineman, Glaser, Glick, Seabold, Wells, Howell, Mansdorfer, S. Scherlis, Spragins; and Staff.

Ped. 101. Inpatient Clerkship. Third year.

Students are assigned as clinical clerks for a period of four weeks to the pediatric wards of the University and Mercy Hospitals. They are responsible for patient care and work with house staff and instructors in planning the workup and treatment of assigned patients. Ward rounds are attended three times weekly. The students are assigned tutors who meet with their students three times weekly.

Daily conferences with frequent guest speakers are held covering x-ray diagnosis, cardiology, journal review, chart conferences, neo-natal mortality, case discussions and metabolic diseases. Discussions cover concepts of the premature and neonate, therapeutic management of pediatric patients, nutritional aspects, and disturbances of the genitourinary tract.

Ped. 102. Outpatient Department Clerkship. Fourth year.

Students assigned to pediatrics as clinical clerks for a period of four weeks work in the Pediatric Outpatient Department of the University Hospital. All patients seen by the student are reviewed by an instructor of the pediatric staff. Daily conferences covering a wide range of pertinent pediatric topics are held from 9:30 to 10:30 a.m. Students are assigned to the Development, Seizure, Pediatric Hematology, Cardiology, and Child Guidance Clinics. Senior students are responsible for physical examinations of all neonates. Field trips to various community agencies are offered to selected students. Students are afforded the opportunity of spending one day each week with practicing pediatricians of the community. Ward rounds for senior students are held twice weekly in the University Hospital. Senior students attend the departmental noon conferences.

Ped. 103. Laboratory Research Problems in Pediatrics. Second year. Elective (two students per year).

Students will be required to set up simple laboratory procedures to be used by them

in the study of a clinical problem. Problems will be selected of such limited scope that a fairly complete project can be done by two students cooperating in their elective time over a period of one year. Emphasis will be made on the accuracy and reliability of standard techniques, as applied to the detailed analysis of a clinical problem. Interested students should apply to Dr. Bessman.

PHARMACOLOGY

Professor Krantz (Head of Department); Associate Professor Truitt; Assistant Professor Burgison; and Staff.

Pharmacol. 101. General Pharmacology. Second year. 216 hours.

This course is designed to include those phases of pharmacology necessary for an intelligent use of drugs in the treatment of disease. The didactic instruction includes materia medica, pharmacy, prescription writing, toxicology, dosology, pharmacodynamics, and experimental therapeutics. The laboratory exercises parallel the course of lectures.

In addition, optional conference periods and lectures are available for students desiring further instruction or advice.

For Graduates

All students majoring in the Department of Pharmacology with a view to obtaining the degree of Master of Science or Doctor of Philosophy should secure special training in anatomy, mammalian physiology, organic chemistry, and physical chemistry.

Pharmacol. 201, f.s., General Pharmacology (8). Same as 101, for students majoring in pharmacology. Additional instruction and collateral reading are required. Laboratory fee, \$20.00.

Pharmacol. 205. Research. Maximum credits, 12. Credit in accordance with the amount of work accomplished.

Pharmacol. 206. Pharmacologic Methods. Maximum credits, 4. Credit in accordance with the work accomplished.

Pharmacol. 207, 208. Chemical Aspects of Pharmacodynamics (2-2).

PHYSIOLOGY

Professors Amberson (Head of Department), Ferguson, D. C. Smith; Assistant Professors Fox, Gold, J. I. White; and Staff.

Physiol. 101. Principles of Physiology. First year. Second semester. 225 hours.

The lectures cover the major fields of physiology, including the following areas: central and peripheral nervous systems, neuro-muscular apparatus, heart and circulation, respiration, kidney and body fluids, gastrointestinal tract, endocrines, and reproduction. The laboratory includes experiments with frog and turtle heart and nerve-muscle preparations, mammalian operative work, and observations on the human subject.

For Graduates

The Department of Physiology prefers to accept students who have already had some graduate training elsewhere. Before admission to candidacy for the

Doctor of Philosophy degree the Department gives a qualifying examination, both oral and written, which must be satisfactorily passed.

In the usual case a student majoring in Physiology will be expected to take Physiol. 101 and 102 before, or concurrently with, courses 201 to 206 below. Such a student will extend his major program by taking courses in other departments of this University, and by enrolling in the summer course in physiology at the Marine Biological Laboratory, Woods Hole, Massachusetts.

Physiol. 201. Experimental Mammalian Physiology. Time and credit by arrangement.

Physiol. 202. Blood and Tissue Proteins (2). Two lectures a week, for 15 weeks.

Physiol. 203. Physiology of Reproduction (2). Two hours a week, lectures, conferences and seminars, for 15 weeks.

Physiol. 204. Physiological Techniques. Time and credit by arrangement.

Physiol. 205. Physiology of Kidney and Body Fluids (2). Two hours a week, lectures, seminars, and conferences, for 15 weeks.

Physiol. 206. Seminar. Credit according to work done.

Physiol. 207. Research. By arrangement with the head of the department.

PREVENTIVE MEDICINE AND REHABILITATION

Professors Pincoffs (Head of Department) and H. Williams; Associate Professors Mahoney and Warthen; Assistant Professors Dowling, Farber, and Tayback; and Staff.

Prev. Med. 101. Biostatistics. First year. Second semester. 15 hours.

This series of lectures illustrates the basic methods of statistical analysis and demonstrates their use in several areas of clinical investigation.

Prev. Med. 102. Epidemiology. Second year. 18 hours.

The epidemiology and control of certain types of communicable disease are considered in a series of lectures.

Prev. Med. 103. Applied Preventive Medicine and Rehabilitation I. Third year. 38 hours.

This course consists of three parts. Major disease control programs, community medical resources, and medical care programs are considered during eighteen hours of lectures. Students also participate in the work of the Medical Care Clinic for the population on public assistance and make home visits on selected patients. In addition, students also make field trips with Public Health Nurses and sanitary inspectors.

Prev. Med. 104. Applied Preventive Medicine and Rehabilitation II. Fourth year. 16 hours.

Conference on Home Survey Reports. Each student in his third year has been assigned a patient of the Medical Care Clinic whom he follows by visits to the home. He reports his observations at a small group conference organized jointly by the Departments of Preventive Medicine and Psychiatry. Consideration is given to the family inter-relations, the economic situation, the dietary habits, the sanitation, and the physical characteristics of the home as they influence the patient's illness.

Disposition Conference. Students present patients whose disabilities offer problems concerned with the provision of suitable care following discharge. An appraisal of the home and family has been made by a student visit prior to the conference. On the basis of the medical needs, the patient's ability to cooperate, and the available home and community resources, a realistic recommendation for disposition is made to the Department concerned.

PSYCHIATRY

Professors Finesinger (Head of Department), Reid; Associate Professors Grenell, M. Guttmacher, Sutherland, I. Young; Assistant Professors R. Band, Berblinger, Callaway, Jaffe, Libo, Murdock, Pope, Tuerk; and Staff.

Psy. 101. Introduction to Psychiatry. First year. 80 hours.

This course is devoted to a consideration of human relations as applied to the practice of medicine. The topics dealt with include personality development, reactions to stress, and situational and social factors in disease. The emphasis is upon observing, understanding, and evaluating the personal and social factors in the disease process, in treatment, and in prevention. Consideration is given to problems of values and scientific methodology as they apply to the work of the physician. Patients with common medical and surgical complaints are interviewed to illustrate methods of interviewing and developing a useful therapeutic relationship. The course is conducted by means of group discussion, supplemented by reading.

Psy. 102. Psychopathology. Second year. 48 hours.

Emphasis is placed on methods of examining patients, and methods of developing and utilizing the doctor-patient relationship. The discussions center about psychopathology, as it operates in disease and in the treatment process. An attempt is made to relate emotional disturbances to what is known in neurophysiology, endocrinology, psychology, and sociology. Patients are interviewed and examined to illustrate the general principles and the specific procedures used in the examination of patients. The group discussions are supplemented by suggested reading.

Psy. 103. Psychiatric Clinical Clerkship. Third year. 80 hours.

Students in groups of 6 are assigned for a two-week period as clinical clerks at Spring Grove or Springfield State Hospitals. Emphasis is placed on the diagnosis and treatment of psychiatric disorders. Students are assigned patients on the admission services of the hospitals and assume responsibility for the histories, the mental status, and other examinations. Most of the student's time is spent with patients. During the day he examines and studies his own patient. During the evenings he works on the wards learning methods of managing and treating disturbed patients.

Psy. 104. Advanced Psychiatric Clinical Clerkship. Fourth year. 110 hours.

A clinical clerkship is offered in the wards of the University Hospital for one month. Patients are assigned for treatment under supervision. Emphasis is placed on diagnosis, methods of interviewing, methods of developing and managing a therapeutic doctor-patient relationship, and carrying out psychotherapy. Two afternoons each week are spent treating patients under supervision in the Comprehensive Clinic. This is supplemented by seminar meetings for discussion of child psychiatry, psychotherapy, clinical psychology and social service, and court problems. Topics are assigned from the current literature for group discussion. During the year each student works two weeks on the in-patient halls from 6:00 p.m. to 10 p.m., observing and working with disturbed patients.

RADIOLOGY

Professors Dennis (Head of Department), Davidson; Associate Professor Bloedorn; Assistant Professors Boudreau, Dana, DeCarlo; and Staff.

Rad. 101. Radiologic Anatomy. First year. First semester. 12 hours.

A correlated course is given in conjunction with the Department of Anatomy. This course consists of nine lecture-demonstrations devoted to the skull, chest, gastrointestinal tract, genitourinary tract, the spine, and joints. Not only is the normal anatomy shown, but the radiologic aspects of a few pathologic processes are also shown for emphasis and correlation.

Rad. 102. Radiologic Physiology. First year. Second semester. 3 hours.

In conjunction with the Department of Physiology, students, in groups of four, spend one afternoon in the Department of Radiology where they observe fluoroscopically respiratory and gastrointestinal physiology. An introduction is also given to the use of contrast material, as it is used in radiology, to demonstrate the function and structure of various portions of the human body.

Rad. 103. Pathologic Correlation. Second year. 4 hours.

Lecture-demonstrations are given in conjunction with the Department of Pathology for correlation between gross pathology and the roentgenologic manifestations of various disease states, e.g. abnormal calcium metabolism, pulmonary diseases, bone tumors, and tissue reaction to radiant energy.

Rad. 104. Radiologic Orientation I. Third year. 28 hours.

A series of lecture-demonstrations are given to small groups of students at the Baltimore City Hospitals, Mercy Hospital, and the University Hospital. An attempt is made to cover the roentgen studies of all systems of the body with demonstrations of the more common lesions encountered in each system. At Baltimore City Hospitals, twelve lecture-demonstrations are given on the chest, the genitourinary tract, and metabolic bone diseases, while at Mercy Hospital three hours are devoted to the arthrides and bone tumors. At the University Hospital, additional lecture-demonstrations are devoted to the lungs, gastrointestinal tract, heart, and skull.

Rad. 105. Radiologic Orientation II. Fourth year. 30 hours.

Students, in groups of three, are assigned part-time to the Department of Radiology for a period of one week. One morning is spent making rounds in the radiotherapy division. The other mornings are spent in the reading rooms with the staff radiologist and in the fluoroscopy rooms observing chest and gastrointestinal studies. In the afternoons, a group of teaching films, illustrating common congenital anomalies and pathologic lesions, are available for study.

Beside the organized lecture-demonstrations in radiology, Junior and Senior students attend the radiologic conferences held jointly with the Departments of Pediatrics and Surgery and the Neurosurgery and Urology Divisions.

SURGERY

Professors Buxton (Head of Department), Arnold, Brantigan, C. R. Edwards, Hull, Kitlowski, O'Rourke, Pessagno, Rodgers, Voshell, Yeager, and Young; Associate Professors Fox, Garlick, Kayser, Kyper, Rich, Ullrich, and Walker; Assistant Professors T. R. Adams, Bongardt, Bowie, Brager, Cowley, Gillis, Govatos, Haines, Isaacs, Mays, J. P. Miller, Schwartz, Siwinski, Thompson, Wilder, and Staff.

Surg. 101. Principles of Surgery. Third year. 48 hours.

Three one hour periods are devoted each week to a discussion of fundamental surgical problems and a systematic description of general surgical disease. These discussions are designed as introductions to and preparation for detailed reading in standard textbooks and monographs in surgery and in current periodicals.

Surg. 101a. Surgical Specialty Lectures. Third year. 48 hours.

This is a continuation of Surg. 101, wherein the surgical discussions center around the problems of Otorhinolaryngology, Thoracic Surgery, Neurosurgery, Orthopedic Surgery, and Urologic Surgery.

Surg. 103. Outpatient Clerkship in Surgery. Third year. 286 hours.

One-fourth of the third year class is assigned to the Department of Surgery each quarter of the school year. Students are assigned to the Outpatient Department for the examination and supervised care of patients in the General Surgical, Orthopedic, Urologic, Neurosurgical, Thoracic Surgical, and ENT Clinics. One-third of this quarter is spent at Mercy Hospital. Seminars are conducted in Surgical Pathology and upon the effects of Trauma. Students are assigned in rotation as clinical clerks at night in the Emergency Room.

Summer Fellowships.

Three fellowships are available each summer for a period of 10 weeks in the Surgical Research Laboratory. Both sophomore and junior students are eligible and may elect to spend their fellowship in neurosurgery, thoracic, or general surgery. Investigative problems related to these services will be undertaken under the guidance of members of the Surgical Staff in these specialties.

DIVISION OF GENERAL SURGERY

Drs. Buxton, C. R. Edwards, Yeager, Hull, Pessagno, Adams, Bowie, Govatos, Siwinski, Bongardt, Brager, and Staff.

Surg. 103a.

This is the student's introduction to an office-type surgical practice in that he undertakes the supervised care of patients in the Surgical Dispensary. General discussion related to problems presented by these patients are given by the Surgical Staff. The introduction to specific surgical technics in examination and treatment of patients is undertaken. This course is given at both University and Mercy Hospitals. Audio-visual instruction is given weekly. Students are assigned to the Emergency Room during this period.

Surg. 104a.

Senior students are assigned to patients on the surgical wards in the University Hospital. They are responsible for the physical examination, history and certain laboratory tests as required by the patient's disease.

DIVISION OF NEUROSURGERY

Drs. Arnold, Thompson, and Staff.

Surg. 103b.

Junior students are assigned to this division for instruction in the care of patients in the Outpatient Department. Part of a day each week is devoted to Pediatric Neurosurgery. Instruction in Neurosurgery is done at the University Hospital only.

Surg. 104b.

Senior students are assigned to all patients on Neurosurgery as they are admitted. Weekly conferences in patient care and x-ray diagnosis are held. Daily ward rounds are made. Some introduction is given to office practice of neurosurgery by frequent contact with the neurosurgical problems seen in a physician's office.

DIVISION OF ORTHOPEDIC SURGERY

Drs. Voshell, Rodgers, Ullrich, J. P. Miller, Wilder, and Staff.

Surg. 103c.

Junior students are assigned to this division in the Outpatient Department at University and Mercy Hospitals. Patients are seen for diagnosis and postoperative care. Instruction is given in the application of plaster casts and in the ambulatory management of orthopedic problems. Occasion is given to instruction in the Physical Therapy of patients with orthopedic disease.

Surg. 104c.

Senior students are assigned patients both on the surgical wards and in the Emergency Room. They participate in the care of these patients, and are given instruction in the application of traction and plaster casts. Frequent ward rounds are held at the Kernau's Hospital for Crippled Children.

DIVISION OF UROLOGICAL SURGERY

Drs. J. D. Young, Mays, Gillis, Haines, and Staff.

Surg. 103d.

Instruction is given to Junior students in this division in the diagnosis of urologic disease of both men and women. The general aspects of instrumentation are discussed and the roentgenologic evidence of urologic disease is emphasized.

Surg. 104d.

Students are assigned patients in the University Hospital wards. Further instruction is given in diagnosis and instrumentation of these patients and in the x-ray diagnosis of urologic disease.

DIVISION OF OTOLARYNGOLOGY

Drs. O'Rourke, Fox, Kyper, Rich, Kayser, Isaacs, Schwartz, and staff.

Surg. 103e.

Junior students are given a chance to examine the ears, nose and throat of patients in the Outpatient Department. Instruction is given in hearing deficits and in the management of ambulatory patients with minimal otolaryngological disease.

Surg. 104e.

Senior students are assigned patients as they are admitted to this service, and weekly ward rounds are held.

DIVISION OF THORACIC SURGERY

Dr. R. A. Cowley and Staff.

Surg. 103f.

Instruction is given Junior students in this division in the diagnosis of surgical thoracic disease, and in the observation of patients in their postoperative course.

Surg. 104f.

Senior students participate in the care of these patients on the hospital wards and operating rooms. Instruction in diagnostic bronchoscopy. Ward rounds and x-ray conferences are used in the instruction of the students.

MEDICAL LIBRARY

HOWARD ROVELSTAD, A.B., M.A., B.S.L.S.....Director of Libraries and Professor
of Library Science

IDA MARIAN ROBINSON, A.B., B.S.L.S.....Librarian and Associate Professor
of Library Science

HILDA E. MOORE, A.B., A.B.L.S.....Associate Librarian

FLORENCE R. KIRK.....Reference Librarian

HARRIETTE W. SHELTON, A.B., B.S.L.S.....Chief Cataloguer

ALICE M. MELVIN, A.B.....Cataloguer

EDITH M. COYLE, A.B., A.B.L.S., M.A.....Serials Librarian

ELIZABETH E. MCCOACH.....Assistant to the Librarian

ART AS APPLIED TO MEDICINE

CARL DAME CLARKE.....Associate Professor of Art as Applied to Medicine

THOMAS M. STEVENSON, JR.....Instructor in Art as Applied to Medicine

FREDERICK E. FAHDT.....Assistant in Art as Applied to Medicine

GARNET E. AFFLECK, JR.....Assistant in Art as Applied to Medicine

This department is maintained for the purpose of supplying pictorial and plastic illustrations for visual teaching in the classrooms of the medical school and for publication in scientific periodicals. This also includes the preparation of illustrations for use in public relations, drawings, paintings, photography, cinematography, lithography and moulage. Research in prosthetics and the production of prosthetic appliances are also carried out in this department.

Special courses of instruction are given to qualified students.

POSTGRADUATE COURSES

COMMITTEE ON POSTGRADUATE STUDIES

HOWARD M. BUBERT, *Chairman and Director*

DIETRICH C. SMITH, *First Vice-Chairman*

LOUIS A. M. KRAUSE, *Second Vice-Chairman*

ELIZABETH B. CARROLL, *Executive Secretary*

Clifford G. Blitch	Frank H. J. Figge	Harry M. Robinson, Jr.
J. Edmund Bradley	Arthur L. Haskins	William H. Triplett
Otto C. Brantigan	John C. Krantz, Jr.	Allen F. Voshell
William K. Diehl	J. Morris Reese	John A. Wagner

WILLIAM S. STONE, *Dean, Ex-Officio*

A postgraduate course, arranged to interest the Generalist, will be given for the Delaware Academy of General Practice at Wilmington on Wednesday afternoons from one o'clock until four beginning in September and continuing for ten weeks. Further details are not available as this publication goes to press.

Industrial Medicine will be the subject of a postgraduate course to be given during the 1956-57 academic year. However, as this catalog goes to press, no further data on the course is available.

The weekly television presentation "TV-MD" which went off the air on April 29, 1956 for a summer hiatus will be resumed in September. Appropriate recognition of the 150th anniversary of the School of Medicine will be given during this the sesquicentennial year while we continue to strive to bring to our viewers programs not only of great interest and educational value, but of practical aid and helpful advice, particularly in the field of health.

The following intramural postgraduate courses will be given:

ANATOMY:

General Anatomy. Designed to prepare candidates for the examination of the American Board of General Surgery and Surgical Specialties. There is no strict rule governing either the content or duration of the course. Students may dissect a complete cadaver or any particular region in which they may be interested. Tuition is arranged according to registration, content and duration.

Anatomy of the Head and Neck as applied to the eye, ear, nose and throat. Duration 150 hours, beginning on October 1 and ending approximately February 28, comprising two periods of 4 hours per week. Tuition is \$150.00. Details as to the time of the individual periods will be arranged with candidates who wish to take the course.

Surgical Anatomy. Designed to prepare candidates for the examination in Anatomy of the American Board of Surgery. This is a ninety-hour course (3 hours a day, 2 days a week) given in conjunction with the regular sophomore medical course in surgical anatomy. Tuition is \$150.00.

PATHOLOGY

Neuropathology. Designed to aid in meeting the requirements of the specialty boards in neurological sciences, and covers basic studies in diseases of the central nervous system. Duration is six months, full time. Tuition is \$200.00 plus \$10.00 laboratory fee.

GYNECOLOGY

Gynecology, Oncology and Femal Urology. This is a REVIEW, designed primarily for the general practitioner. Students attend lectures, ward rounds, and clinics and OBSERVE operations. Full time for ten weeks. Tuition is \$125.00.

GYNECOLOGY AND OBSTETRICS

Gynecology and Obstetrics. This is a REVIEW, designed for the general practitioner. Students attend lectures, ward rounds and clinics, and OBSERVE operations and deliveries. Full time for twelve weeks. Tuition is \$150.00.

BASIC SCIENCES

Basic Sciences as they apply to the practice of medicine. Designed to familiarize students with the advances in basic sciences during recent years. The course con-

sists of 32 periods of 2 hours each, once a week between October and June. Tuition is \$50.00.

Full descriptions of these courses are available. Inquiries should be addressed to the Postgraduate Committee, University of Maryland School of Medicine, Baltimore 1, Maryland.

LECTURERS IN POSTGRADUATE MEDICINE

Thurston R. Adams	Frank H. J. Figge	Herbert E. Reifschneider
Marie A. Andersch	Jacob E. Finesinger	Dexter L. Reimann
James G. Arnold, Jr.	A. H. Finkelstein	Harry M. Robinson, Jr.
Francis Borges	Russel S. Fisher	Harry M. Robinson, Sr.
Harry C. Bowie	Albert E. Goldstein	Raymond C. V. Robinson
J. Edmund Bradley	Maurice Greenhill	Milton S. Sacks
Otto C. Brantigan	Lewis P. Gundry	John E. Savage
George H. Brouillet	Nathan B. Herman	Leonard Scherlis
Howard M. Bubert	Harry C. Hull	Sidney Scherlis
Raymond M. Burgison	J. Mason Hundley, Jr.	Emil G. Schmidt
T. Nelson Carey	D. Frank Kaltreider	William B. Settle
Robert Chenowith	Theodore Kardash	Dietrich C. Smith
Ernest I. Cornbrooks, Jr.	Vernon E. Krah	Merill Snyder
Edward F. Cotter	John C. Krantz, Jr.	Hugh R. Spencer
R. Adams Cowley	L. A. M. Krause	Melchijah Spragins
Richard J. Cross, Jr.	Arnold F. Lavenstein	Edwin H. Stewart, Jr.
John DeCarlo, Jr.	C. Edward Leach	W. Houston Toulson
John M. Dennis	Ephraim T. Lisansky	Henry F. Ullrich
Francis G. Dickey	William S. Love, Jr.	Allen Fiske Voshell
William K. Diehl	Wm. V. Lovitt, Jr.	John A. Wagner
Everett S. Diggs	Hugh B. McNally	Wallace Walker
D. McClelland Dixon	Howard B. Mays	Milton J. Wilder
Louis H. Douglass	Samuel Morrison	Walter D. Wise
J. Sheldon Eastland	H. Whitman Newell	Henry L. Wollenweber
W. Carl Eberling, III	Robert H. Oster	Theodore E. Woodward
Charles Reid Edwards	Frank J. Otenasek	Joseph B. Workman
Monte Edwards	Ross Z. Pierpont	Robert B. Wright
William L. Fearing	Maurice C. Pincoffs	George H. Yeager
Frederick P. Ferguson	J. Morris Reese	

TENTATIVE

FIRST YEAR SCHEDULE

First Semester, September 20, 1956 to January 26, 1957

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 to 10:00	Histology and Embryology		1st 3 lectures Orientation 9:00-9:50 A.H.			Man and His Environment C.H. 9:00-10:50
10:00 to 11:00	Neuro-Anat-omy	Neuro-Anat-omy		Neuro-Anat-omy	Histology and Embryology	
11:00 to 12:00	B2 Lab.	B2 Lab.	Histology and Embryology 9:00-12:00 B2 Lab.	B2 Lab.	B2 Lab.	
12:00 to 1:00	Lunch					Psychiatry Room 171 P.I. 11:15-1:00
1:00 to 2:00	Gross Anatomy Lecture A.H.	Gross Anatomy Conference A.H.		Gross Anatomy Lecture A.H.	Gross Anatomy Conference A.H.	
2:00 to 5:00	Gross Anatomy Lab. B1 Lab.	Gross Anatomy Lab. B1 Lab. Neuro-Anat-omy	FREE	Gross Anatomy Lab. B1 Lab. Neuro-Anat-omy	Gross Anatomy Lab. B1 Lab.	

A.H.—Anatomical Hall, Upper Hall, 522 West Lombard St.

B1—1st floor, Bressler Bldg.—Laboratory—29 S. Greene St.

B2—2nd floor, Bressler Bldg.—Laboratory—29 S. Greene St.

C.H.—Chemical Hall, Lower Hall, 522 West Lombard St.

P.I.—Psychiatric Institute, 643 Redwood St.

TENTATIVE FIRST YEAR SCHEDULE Second Semester, January 28 to June 8, 1957

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 to 9:50	Biochem. Lect. <i>Adm. I</i>	Biochem. Lect. <i>Adm. I</i>	Biochem. Lect. <i>Adm. I</i>	Biochem. Lect. <i>Adm. I</i>	Biochem. Lect. <i>Adm. I</i>	Man and His Environment <i>C.H.</i> 9:00 - 10:50
10:00 to 10:50	Physiol. Lect. <i>R₂</i>	Physiol. Lect. <i>R₂</i>	Physiol. Lect. <i>R₂</i>	Physiol. Lect. <i>R₂</i>	Physiol. Lect. <i>R₂</i>	
11:00 to 11:50	Physiol. Conf. <i>R₂</i>	Biochem. Conf. <i>Adm. I</i>	Physiol. Conf. <i>R₂</i>	Biochem. Conf. <i>Adm. I</i>	Biostatistics <i>C.H.</i>	Psychiatry Room 171 P.I. 11:15 - 1:00
12:00 to 1:00	Lunch					
1:00 to 5:00	Sect. A Physiol. Lab. B4 Lab. 1:00 - 5:00 Sect. B Biochem. 3rd floor 31 S. Greene St. 1:00 - 4:00 Psychiatry Room 169 P. I. 4:00 - 5:00	Sect. B Physiol. Lab. B4 Lab. 1:00 - 5:00 Sect. A Biochem. 3rd floor 31 S. Greene St. 1:00 - 4:00 Psychiatry Room 171 P. I. 4:00 - 5:00	FREE	Sect. A Physiol. Lab. B4 Lab. 1:00 - 5:00 Sect. B Biochem. 3rd floor 31 S. Greene St. 1:00 - 4:00 Psychiatry Room 171 P. I. 4:00 - 5:00	Sect. B Physiol. Lab. B4 Lab. 1:00 - 5:00 Sect. A Biochem. 3rd floor 31 S. Greene St. 1:00 - 4:00 Psychiatry Room 171 P. I. 4:00 - 5:00	

Adm. I—1st floor, Administration Bldg.—Lecture Hall—520 W. Lombard St.

R₂—2nd floor, Bressler Bldg.—Lecture Hall—29 S. Greene St.

B4—4th floor, Bressler Bldg.—Laboratory—29 S. Greene St.

C. H.—Chemical Hall, Lower Hall—522 W. Lombard St.

P. I.—Psychiatric Institute, 643 Redwood St.

TENTATIVE
SECOND YEAR SCHEDULE
First Semester, September 20, 1956 to January 26, 1957

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 to 10:00	Microbiol. 101 Lect. B2	Microbiol. 101 Lect. B2	Microbiol. 101 Lect. B2	Microbiol. 101 Lect. B2	Pathology Lect. B2	Pathology Lect. B2
10:00 to 11:00	Microbiol. 101 Lab. 2nd floor 31 S. Greene Street	Microbiol. 101 Lab. 2nd floor 31 S. Greene Street	Microbiol. 101 Lab. 2nd floor 31 S. Greene Street	Microbiol. 101 Lab. 2nd floor 31 S. Greene Street	Pharmacol. 101 Lect. B2	Intro. to Clin. Med. 101, 2. Room 171 P. I. 10:00 to 12:00
11:00 to 12:00					Psychiatry 102 Room 171 P.I. 11:00 to 12:30	
12:00 to 1:00	Lunch	Lunch	Lunch	Lunch	Lunch 12:30 to 2:00	
1:00 to 2:00	Pathology Lect. B2	Clin. Path. Lect. B2	Pathology Lect. B2	Pharmacol. 101 Lect. B2		
2:00 to 5:00	Pathology Lab. 1st floor 31 S. Greene Street	Clin. Path. Lab. B5	Pathology Lab. 1st floor 31 S. Greene Street	Pharmacol. 101 Laboratory B3 Sect. A 2:00 to 5:30 Unscheduled Time Sect. B		

TENTATIVE

SECOND YEAR SCHEDULE

Second Semester, January 28 to June 8, 1957

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 to 10:00	Pathology Lect. C.H.	Pathology Lect. C.H.	Pharmacol. 101. Lect. B2	Pathology Lect. C.H.	Preventive Medicine, C.H.	Pathology Lect. B2
10:00 to 11:00	Pathology Lab. 1st floor 31 S. Greene Street	Pathol. Lab. 1st floor 31 S. Greene Street	Anat. 103 B2 10:00 to 11:00	Pathol. Lab. 1st floor 31 S. Greene Street	Pharmacol. 101 C.H. 10:00 to 11:00	Intro. Clin. Med. I.D.2 Room 171 P. I.
11:00 to 12:00			Anat. 103 B1 Lab. 11:00 to 1:00	Lunch	Psychiatry Room 171 P. I. 11:00 to 12:30	
12:00 to 1:00	Lunch	Lunch			Lunch 12:30 to 2:00	
1:00 to 2:00	Neurology C. H.	Clin. Path. Lect. B2		Pharmacol. 101. Lect. B2		
2:00 to 3:00	Anat. 103 B2	Clin. Path. Lab. B5	FREE	Pharmacol. 101 Sect. A Physiolog. Diagnosis I. D. 3 Sect. B	Lab. B3 Sect. B 1. D. 3 Sect. A	
3:00 to 4:00	Anat. 103 B1 Lab.					
4:00 to 5:00						

THIRD YEAR SCHEDULE

September 20, 1956 to June 8, 1957

LECTURE SCHEDULE**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00 to 8:50	Surgery <i>C. H.</i>	Surgery <i>C. H.</i>	Obstetrics <i>C. H.</i>	Surgery <i>C. H.</i>	Pathology <i>C. H.</i>	Surgical Specialties <i>C. H.</i>
9:00 to 9:50	Medicine Neurology Preventive Medicine <i>C. H.</i>	Obstetrics 1st Semester Psychiatry 2nd Semester <i>C. H.</i>	Surgical Spec. Urology Plastic Surgery Ophthalmology <i>C. H.</i>	Gynecology Ophthalmology <i>C. H.</i>	Medicine Legal Medicine Preventive Medicine <i>C. H.</i>	<i>C. P. C.</i> A.M.P.

CLASS DIVISIONS*

Division 1	Division 2	Division 3	Division 4†
<u>Medicine</u> Legal Medicine Industrial Medicine Neurology Infectious Diseases Preventive Medicine	<u>Surgery</u> Operative Surgery Neuro Surgery Otolaryngology Otolology Ophthalmoscopy Pathology	<u>The Specialities</u> Obstetrics Pathology Psychiatry Pediatrics	Clinical Clerkships Neurology Pathology Radiology Orthopaedics

STUDENT GROUP ASSIGNMENTS

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Groups 1 and 2	Groups 1 and 2	Groups 1 and 2	Groups 1 and 2
Groups 3 and 4	Groups 3 and 4	Groups 3 and 4	Groups 3 and 4
Groups 5 and 6	Groups 5 and 6	Groups 5 and 6	Groups 5 and 6
Groups 7 and 8	Groups 7 and 8	Groups 7 and 8	Groups 7 and 8
Division 1	Division 2	Division 3	Division 4
Division 2	Division 3	Division 4	Division 1
Division 3	Division 4	Division 1	Division 2
Division 4	Division 1	Division 2	Division 3

****Refer to mimeographed schedules for complete details.**

The Curriculum is arranged into 4 divisions, and the class into 8 groups. The entire class assembles daily (except Sunday) for lectures at 8:00 and at 9:00 a.m. in Chemical Hall after which students are assigned to Division 4 transfer to B.C.H. Divisions 1, 2, and 3 remain at University Hospital.

*Students of Division 4 spend 8 weeks at Baltimore City Hospitals. On Mondays and Tuesdays students assigned to Division 4 at Baltimore City Hospitals return to the Medical School for Medical Clinic and Pathology.

TENTATIVE FOURTH YEAR SCHEDULE September 20, 1956 to June 8, 1957

CLASS DIVISIONS*

Division 1†	Division 2	Division 3†	Division 4
Medicine and Medical Specialties (8 weeks) — Neurology Hypertension Cardiology Gastro-Enterology Metabolism Allergy Infectious Diseases — Radiology	Pediatrics (4 weeks) — Psychiatry (4 weeks)	Surgery and Surgical Specialties (8 weeks) — Urology Neuro Surgery Otology Otolaryngology Orthopaedics — Radiology	Obstetrics (2 weeks) — Gynecology Oncology (2 weeks) — Dermatology & Syphilology Oncology Ophthalmology Anesthesiology (4 weeks)

STUDENT GROUP ASSIGNMENTS

1st Quarter	3rd Quarter
8 weeks Groups 1, 2, 3, 4 to Division 1† Groups 5, 6, 7, 8 to Division 2 Groups 9, 10, 11, 12 to Division 3† Groups 13, 14, 15, 16 to Division 4	8 weeks Groups 1, 2, 3, 4 to Division 3† Groups 5, 6, 7, 8 to Division 4 Groups 9, 10, 11, 12 to Division 1† Groups 13, 14, 15, 16, to Division 2
2nd Quarter	4th Quarter
8 weeks Groups 1, 2, 3, 4 to Division 2 Groups 5, 6, 7, 8 to Division 3† Groups 9, 10, 11, 12 to Division 4 Groups 13, 14, 15, 16 to Division 1†	8 weeks Groups 1, 2, 3, 4 to Division 4 Groups 5, 6, 7, 8 to Division 1† Groups 9, 10, 11, 12 to Division 2 Groups 13, 14, 15, 16 to Division 3†

*The curriculum is arranged into 4 divisions, and the senior class into 16 groups.

†The curriculum of Divisions 1 and 3 is given at the University and Mercy Hospitals simultaneously. There are 4 groups of students assigned to each division. Two groups or one half the students of each division are assigned work for 4 weeks at each hospital. Students belonging to groups 1, 2, 9 and 10 report to the University Hospital for the 1st 4 weeks, Groups 3, 4, 11 and 12 report to Mercy. At the end of 4 weeks the students at the University Hospital report to Mercy and the groups at Mercy report to the University Hospital for a similar period, thus completing for each group involved one division of work.

THE SCHOOL OF PHARMACY

OFFICERS OF ADMINISTRATION

WILSON H. ELKINS, D. Phil., *President of the University*

H. C. BYRD, LL.D., D.Sc., *President Emeritus*

NOEL E. FOSS, B.S., Ph.D., *Dean*

G. WATSON ALGIRE, M.S., *Director of Admissions and Registration*

FACULTY COUNCIL

NOEL E. FOSS, *Dean*

Adele B. Ballman

C. T. Ichniowski

Francis M. Miller

Donald E. Shay

Frank J. Slama, *Secretary*

FACULTY

EMERITA

B. OLIVE COLE.....*Professor of Pharmacy Administration, Emerita*

PROFESSORS

*GAYLORD B. ESTABROOK.....*Professor of Physics*
B.S. in Ch.E., Purdue University, 1921; M.S., Ohio State University, 1922; Ph.D., University of Pittsburgh, 1932.

NOEL E. FOSS.....*Professor of Pharmacy*
Ph.C., South Dakota State College, 1929; B.S. in Pharm., 1929; M.S., University of Maryland, 1932; Ph.D., 1933.
Registered Pharmacist—South Dakota, New York.

CASIMIR T. ICHNIOWSKI.....*Emerson Professor of Pharmacology*
Ph.G., University of Maryland, 1929; B.S. in Pharm., 1930; M.S., 1932; Ph.D., 1936.
Registered Pharmacist—Maryland.

†W. ARTHUR PURDUM.....*Professor of Hospital Pharmacy*
Ph.G., University of Maryland, 1930; B.S. in Pharm., 1932; M.S., 1934; Ph.D., 1941.
Registered Pharmacist—Maryland.

*A. W. RICHESON.....*Professor of Mathematics*
B.S., University of Richmond, 1918; A.M., The Johns Hopkins University, 1925; Ph.D., 1928.

EMIL G. SCHMIDT.....*Professor of Biological Chemistry,*
School of Medicine
B.S., University of Wisconsin, 1921; Ph.D., 1924; LL.B., University of Maryland, 1934.

DONALD E. SHAY.....*Professor of Bacteriology*
B.S., Lebanon Valley College, 1937; M.S., University of Maryland, 1938; Ph.D., 1943.

FRANK J. SLAMA.....*Professor of Pharmacognosy*
Ph.G., University of Maryland, 1924; Ph.C., 1925; B.S. in Pharmacy, 1928; M.S., 1930; Ph.D., 1935.
Registered Pharmacist—Maryland.

ASSOCIATE PROFESSORS

BENJAMIN FRANK ALLEN.....*Associate Professor of Pharmacy*
B.S. in Pharm., University of Maryland, 1937; Ph.D., 1949.
Registered Pharmacist—Maryland.

EDWARD J. HERBST.....*Associate Professor of Biological Chemistry,*
School of Medicine
B.S., University of Wisconsin, 1943; M.S., 1944; Ph.D., 1949.

*Teachers detailed from the College of Arts and Sciences to the Baltimore Branch of the University.

†Part time.

*FRANCIS M. MILLER.....*Associate Professor of Chemistry*
B.S., Western Kentucky State College, 1946; Ph.D., Northwestern University,
1949.

IDA MARIAN ROBINSON.....*Associate Professor of Library Science*
A.B., Cornell University, 1924; B.S.L.S., Columbia University School of Library
Science, 1944.

RAYMOND E. VANDERLINDE.....*Associate Professor of Biological*
Chemistry, School of Medicine
A.B., Syracuse University, 1944; M.S., 1947; Ph.D., 1950.

ASSISTANT PROFESSORS

*ADELE B. BALLMAN.....*Assistant Professor of English*
A.B., Goucher College, 1926; Ph.D., Johns Hopkins University, 1935.

*CHARLES W. FOREMAN.....*Assistant Professor of Zoology*
B.A., University of North Carolina, 1949; M.A., Duke University, 1951; Ph.D.,
1954.

PAUL A. PUMPIAN.....*Assistant Professor of Pharmacy Administration*
B.S., University of Maryland, 1948; B.S. in Pharm., 1950; LL.B., 1953.
Registered Pharmacist—Maryland; Member of the Maryland Bar.

*CLAIRE STRUBE SCHRADIECK.....*Assistant Professor of Foreign Languages*
A.B., Goucher College, 1916; Ph.D., The Johns Hopkins University, 1919.

FRANK D. VASINGTON.....*Assistant Professor of Biological Chemistry,*
School of Medicine
A.B., University of Connecticut, 1950; M.S., 1952; Ph.D., University of Maryland,
1955.

INSTRUCTORS

BERNARD D. BLAUSTEIN.....*Instructor in Chemistry*
B.S. Ch.E., University of Pennsylvania, 1950; M.A., Johns Hopkins University, 1951.

ANN VIRGINIA BROWN.....*Instructor, Biological Chemistry,*
School of Medicine
A.B., Goucher College, 1940.

SAMUEL L. FOX.....*Instructor in Physiology, School of Medicine*
Ph.G., University of Maryland, 1934; B.S. in Pharm., 1936; M.D., 1938.

GEORGIANNA S. GITTINGER.....*Instructor in Pharmacology*
A.B., Hood College, 1912; M.A., University of Virginia, 1924.

BERNARD F. GRABOWSKI.....*Instructor in Chemistry*
B.S. in Pharm., Temple University, 1952; M.S., 1954.
Registered Pharmacist—Pennsylvania.

*Teachers detached from the College of Arts and Sciences to the Baltimore Branch
of the University.

JOHN J. SCIARRA.....*Instructor in Pharmacy*
 B.S. in Pharm., St. Johns University, 1951; M.S., Duquesne University, 1953.
 Registered Pharmacist—New York, Pennsylvania.

VISITING LECTURER

LONDON W. BURBAGE.....*Visiting Lecturer in Pharmacy Administration*
 Ph.B., Medical College of Virginia, 1909; Ph.G., 1910.

ASSISTANTS

*MARIO D. ACETO.....*Assistant in Zoology*
 B.S. in Pharm., Rhode Island College of Pharmacy, 1953.
 Registered Pharmacist—Rhode Island.

PAUL HAUBRICK.....*Assistant in Bacteriology*
 B.A., Carroll College, 1950.

JERALD R. IZATT.....*Assistant in Physics*
 B.S., University of Utah, 1952.

†THEODORE KALLELIS.....*Assistant in Pharmacognosy*
 B.S., Tufts College, 1935; B.S., in Pharmacy, Massachusetts College of Pharmacy,
 1952; M.S., Temple University, 1954.
 Registered Pharmacist—Maryland, Massachusetts, Pennsylvania.

ROBERT KOKOSKI.....*Assistant in Pharmacy*
 B.S. in Pharm., University of Maryland, 1952.
 Registered Pharmacist—Maryland.

THEODORE KRANZLER.....*Assistant in Pharmacy*
 A.A., George Washington University, 1952; B.S. in Pharm., 1954.
 Registered Pharmacist—District of Columbia.

DEAN LEAVITT.....*Assistant in Pharmacy Administration*
 B.S. in Pharm., University of Maryland, 1954.
 Registered Pharmacist—Maryland.

WILLARD LENNOX.....*Assistant in Pharmacology*
 B.S. in Pharm., University of Maryland, 1954.
 Registered Pharmacist—Maryland.

PHILLIP JULIAN LEVINE.....*Assistant in Pharmacy*
 B.S., Rhode Island College of Pharmacy, 1955.
 Registered Pharmacist—Maryland, Rhode Island.

BARBARA B. MACHAMER.....*Assistant in Chemistry*
 A.B., Goucher College, 1955.

*Teachers detailed from the College of Arts and Sciences to the Baltimore Branch of the University.
 (†) Half-time.

- FRANK MILIO.....*Assistant in Pharmacy*
 B.S. in Pharm., University of Maryland, 1952.
 Registered Pharmacist—Maryland.
- *JOHN ROSKOS, JR.*Assistant in Pharmacology*
 B.S. in Pharm., Southern College of Pharmacy, 1953.
- MYRON SIMON WEINBERG.....*Assistant in Chemistry*
 B.A., New York University, 1950; B.S. in Pharm., Fordham University, 1954.
 Registered Pharmacist—Maryland.

LIBRARY STAFF
 PHARMACY-DENTISTRY

- IDA MARIAN ROBINSON, A.B., B.S.L.S.....*Librarian*
 HILDA E. MOORE, A.B., A.B.L.S.....*Associate Librarian*
 BEATRICE MARRIOTT, A.B.....*Reference Librarian*
 CURTIS C. CROM, A.B., M.S.L.S.....*Periodicals Librarian*
 HARRIETTE W. SHELTON, B.A., B.S.L.S.....*Chief Cataloguer*
 MARJORIE E. FLUCK, B.S. in Ed.....*Assistant Cataloguer*
 MARJORIE H. JARVIS.....*Library Assistant*
 ELIZABETH E. McCOACH.....*Assistant to the Librarian*
 PATRICIA C. WATKINS.....*Assistant to the Cataloguer*

ASSISTING STAFF

- DAISY LOTZ GUE.....*Secretary-Stenographer*
 MARGARET E. BEATTY.....*Senior Stenographer*
 LORETTA H. SHELLEY.....*Senior Stenographer*

*Resigned January 31, 1956.

THE SCHOOL OF PHARMACY

History and Program

The purposes of the School of Pharmacy are to train students for the efficient, ethical practice of all branches of pharmacy; to instruct students in general scientific and cultural subjects so that they can read critically, express themselves clearly, and think logically as members of a profession and citizens of a democracy; to guide students into productive scholarship and research for the increase of knowledge and techniques in the healing arts of pharmacy.

The Maryland College of Pharmacy, the oldest pharmacy school of the South, was organized on July 20, 1840 by a progressive group of Maryland physicians and apothecaries to provide systematic instruction in pharmacy to replace the outdated apprenticeship training. The College, incorporated on January 27, 1841, gave its first lectures in November. In 1904, the College joined with a group of medical schools and the Maryland College of Dental Surgery to offer cooperative instruction in the health sciences. The new institution was known as the University of Maryland. In 1920, this group of Baltimore professional schools was merged with the Maryland State College at College Park to form the present University of Maryland.

The School now occupies a six-story building constructed specifically for pharmaceutical education. The laboratories and classrooms are equipped with the most modern apparatus and every aid to instruction in the liberal arts and for research in pharmacy is available.

The library facilities are excellent. The pharmacy collection containing over 27,000 books, is now merged with the dentistry collection.

Students have access to the Medical School Library, and the time-honored collections of the Enoch Pratt, the Peabody, the Medical and Chiurgical Faculty, and The Johns Hopkins University. Most of these libraries are within walking distance of the School.

Students also have access to the art collections at the Walters Art Gallery and the Baltimore Museum of Art.

Like all professions devoted to education in the health sciences, pharmacy has expanded its period of training over the years from a one-year to a four-year course. The American Association of Colleges of Pharmacy has now recommended a five-year course. However, such a program is in the future and students attending and entering the School of Pharmacy in the Autumn of 1956 will be required to take only the four-year course.

The School of Pharmacy has always been a fully accredited Class A school and was again so rated at its last inspection in November 1953 by the Middle States Association of Schools and Colleges and by the American Council on Pharmaceutical Education. The diploma of the School is recognized by every state board of pharmacy.

DEGREES

The School of Pharmacy offers courses leading to the following degrees: Bachelor of Science in Pharmacy, Master of Science, Doctor of Philosophy. The general procedures to be followed by undergraduate students are set forth below.

Candidates for advanced degrees must register in the Graduate School of the University. For detailed information, see the catalogue of the Graduate School.

ADMISSION TO THE FRESHMAN CLASS

Amount and Quality of Scholastic Preparation

To be admitted to the School of Pharmacy, a candidate must be a graduate of a secondary school approved by the State Board of Education of Maryland or a similar accrediting agency and must submit credentials acceptable to the Director of Admissions, as proof of adequate preparatory-school training.

Sixteen units of academic work are required of each applicant.

The following work must have been completed :

English—4 units	}	Total 8½ units
Algebra—1½ units		
Plane Geometry—1 unit		
History—1 unit		
Science—1 unit		

The remaining seven and one-half units may be in astronomy, biology, botany, chemistry, civics, economics, general science, geology, history, foreign languages, mathematics, physical geography, physics, zoology, or any subject offered for which credit is granted toward college or university entrance. Not more than four units may be vocational units (agriculture, commercial drawing, home economics, shop courses, etc.).

Interested secondary school students are invited to write to the Director of Admissions or the Dean of the School of Pharmacy for an *Application Blank*, an illustrated brochure about the School, and literature about opportunities in pharmacy.

ADMISSION TO ADVANCED STANDING

An applicant for admission to advanced standing must fulfill the requirements for admission to the freshman class and present official transcripts of his college record along with a certificate of good standing from the college he attended. His grade average must be at least C or the equivalent in the college's grading system.

Transfers from colleges of pharmacy accredited by the American Council on Pharmaceutical Education are given credit for the work of the first three years of the pharmacy curriculum which they have completed.

Transfers from liberal arts colleges are given credit for the liberal arts subjects of the pharmacy curriculum. Not more than a year's credit is given for work completed at a liberal arts college.

All students admitted to advanced standing are required to take those courses in the School's curriculum which they have not completed. In the schedules for transfer students, elementary subjects not completed are given preference over advanced work.

Credit is not given for pharmaceutical work done in evening or correspondence schools, nor is credit given by examination for work done at other institutions if the school did not grant credit.

In determining the grade-point average of transfer students, only those courses taken at the School of Pharmacy of the University of Maryland are used.

Requests for application blanks and information should be directed to the Dean of the School of Pharmacy or to the Director of Admissions.

ADMISSION AND COSTS

Admission Procedure for All Applicants

1. Request the Director of Admissions or the Dean of the School of Pharmacy to send the preliminary application blank. Fill the blank out fully including the names of all schools and colleges which the candidate has attended. Sign the blank and return it with the required photographs and a seven dollar and fifty cent investigation fee to the Director of Admissions not earlier than October first of the academic year prior to the proposed beginning of the candidate's studies at the school. (This fee will not be refunded or credited on any subsequent bill.)

2. Send the high school record blank which accompanies the application blank to the principal of the high school attended and request that he mail it promptly to the Admissions Office. If these credentials appear satisfactory, the prospective student will be advised to:

3. Report to the School of Pharmacy for entrance examinations and interviews. The School seeks indications of aptitude for undertaking pharmacy studies by examining the school records of candidates, their scores in aptitude and achievement tests, and estimates of their interests, maturity, and personality. Entrance examinations and interviews are held in February, but subsequent opportunities are given.

4. The Admissions Office acts continuously upon the application of candidates whose credentials are complete, except for the final school record, and the School of Pharmacy notifies such candidates who appear satisfactory that they have been tentatively accepted.

5. Students who are offered tentative admission must immediately make a deposit of \$60.00 (\$10.00 matriculation fee plus \$50.00 deposit on tuition) on their September tuition. This deposit is non-returnable if the student fails to register in the autumn, but is credited against the first semester tuition charge of all students who enter.

REGISTRATION AND FEES

All students must enroll in person at the Dean's office during the registration period at the beginning of each semester. On registration day the student fills out necessary forms and class cards and pays his fees. Detailed directions concerning dates and procedure are mailed during the Summer to students who are eligible to enroll in the fall. All new students must matriculate.

All students must complete their registration at the office of the Registrar upon the days scheduled in the calendar. No student is permitted to enter classes until he has done so. Students who fail to register on the days and hours printed in this catalogue are required to pay a late registration fee of five dollars. The last day for late registration is Saturday noon following the close of the normal registration period. This rule may be waived only upon the written recommendation of the Dean.

TUITION AND LABORATORY FEES

Full-time Undergraduate Students*Tuition fee (per semester)*

Residents of Maryland \$135.00

Non-residents 160.00

Laboratory fee (per semester)

15.00

(This one fee covers all laboratory courses)

Student Activities' Fee (per semester)

7.50

(This fee covers subscription to the yearbook, *Terra Mariae*, to the weekly newspaper, *Maryland Mortar*, all expenses of School luncheons, picnics, dances, Honors Convocation)*Incidental Charges**For New Students Only*

Application fee (non-returnable) 7.50

Matriculation fee (non-returnable) 10.00

Deposit upon acceptance for admission 50.00

(This fee will be credited against the first semester's tuition.)

For Seniors

Graduation Fee (To be paid in February of the Senior Year) 15.00

Delinquencies and Breakage

Late Registration Fee 5.00

Special Examination Fee 5.00

Breakage—Students are required to pay for all breakage in excess of \$5.00 per year

Other Expenses

Books, stationery, weights, slide rule, dissecting instruments, etc. Approximately 130.00

Students registering for more than a regularly scheduled semester's work will be charged additionally for each course.

Fee for Change in Registration after first week 3.00

Part-time Undergraduate Students

All students registered for twelve semester hours or more are considered full-time students. Part-time students are charged as follows:

Tuition fee (for each semester hour per semester) \$10.00

Laboratory fees (per semester):

Bacteriology \$10.00

Chemistry 10.00

Pharmacognosy 5.00

Pharmacology 10.00

Pharmacy 10.00

Physics 6.00

Physiology 8.00

Zoology 8.00

Graduate Students

Matriculation fee (for new students only, non-returnable)	10.00
Tuition fee (per semester hour each semester)	10.00
Tuition fee for students carrying 10 or more semester credit hours	100.00
Laboratory fee—Same as undergraduate schedule above	
Graduation fee	
Master's degree	10.00
Doctor's degree (including hood and microfilming of thesis)	50.00

Return of Fees Upon Withdrawal

Students withdrawing from School at any time during the academic year, must file a written request for withdrawal with the Dean. Students who do not comply with this ruling are not issued an honorable dismissal and are not accorded any refund of tuition. Minors may withdraw only with the written consent of parent or guardian. Fees are refunded to withdrawing students in accordance with the following schedule:

Period from date instruction begins:

Two weeks or less.....	80%
Between two and three weeks.....	60%
Between three and four weeks.....	40%
Between four and five weeks.....	20%
Over five weeks.....	No return

The date used in computing refunds is the date the application for withdrawal is filed in the office of the Dean.

The \$60.00 deposit required of all entering students will not be returned under any circumstances.

TEXT BOOKS

Each student is required to have his own text books. The books required in each course will be announced at the beginning of each semester.

CHANGES IN CURRICULUM

The Faculty Council reserves the right to make, at any time, such changes in the curriculum as may be found necessary or desirable.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in this State for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents of this State by maintaining such residence for at least one full year. However, the right of the minor student to change from a non-resident status to resident status must be established by him prior to the registration period set for any semester.

Adult students are considered to be residents if at the time of their registration they have been domiciled in this State for at least one year provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word domicile as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be maintained.

The following interpretations or modifications of the above rules shall apply:

(a) The domicile of the wife shall be that of her husband, except in the case of a minor supported by her parents, in which event the marital status will not be considered in determining the residence status.

(b) Should the parents be separated, the domicile of the parent who furnishes the support shall determine the residence status of the child.

(c) Should the support of a minor not be furnished by the parents or guardians, the domicile of the person who furnishes the entire support shall determine the residence status of the child.

(d) Should the support for a student be derived from a trust fund established specifically for his support and education, the domicile of the person who established the fund during the full year previous thereto shall determine the residence status of the student.

(e) Should the parent or other person responsible for a student be required to leave this State for business or military reasons, he shall not be deprived of his right to claim residence status if it is evident that he intends to return to this State upon the completion of the special business or military assignment.

(f) The non-resident status of an adult may be changed upon proof that he has purchased and has maintained a home in Maryland for at least one full year; that he has become a registered voter of this State; and that he intends to make this State his domicile. These facts must be established prior to the registration period of the semester for which this change of status is requested.

ACADEMIC REGULATIONS

Attendance Requirements

Students who have not attended eighty-five percent of scheduled classes and laboratory periods for any subject are not admitted to the final examination in that subject. Absences due to illness and late registration are normally counted with the fifteen percent allowable absence. Lateness of more than half a period is construed as absence; two latenesses of less than half a period are also construed as an absence.

Examinations

Written and oral quizzes are given throughout the semester at the discretion of the instructor. Final examinations are held at the end of each semester as scheduled on the calendar printed in this catalogue.

Students unable to appear for final examinations must report to the Dean immediately. When the absence is justifiable, the Dean will grant permission for a deferred examination.

Grading System

The School uses the standard University of Maryland grading system:

<i>Grade</i>	<i>Interpretation</i>	<i>Point Value</i>
A	Excellent	4
B	Good	3
C	Fair	2
D	Poor but passing	1
F	Failure	0
I	Course work incomplete	replaced by definite grade when course requirements have been met

Standing in scholarship is based upon the grade-point average for the semester's work. This average is found by multiplying the grade received by the number of credit hours the course carries:

<i>Subject</i>	<i>Credit</i>	<i>Grade</i>	<i>Points</i>
English	3	C	6
Speech	1	D	1
German	3	B	9
Mathematics	3	C	6
Chemistry	4	D	4
Zoology	4	B	12
	—		—
	18		38

Dividing the number of points by the number of credits, the student is found to have a grade-point average of 2.1.

When, for any reason, a course is repeated, the final mark is used.

In computing scholastic averages only those courses taken in residence at the School of Pharmacy are considered.

SCHOLARSHIP REQUIREMENTS

Mid-Semester Failure Warnings.

Each student is assigned to a Class Advisor who counsels him on his academic standing. Six weeks after the beginning of each semester, the Dean warns and the Advisor interviews all students earning grades of D and F.

Incomplete Work

The mark of I (incomplete) is exceptional. It is to be given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond his control, he has been unable to complete the requirement. Whenever the mark I is used the instructor enters on the class card a reason of the character stated above with an estimate of the quality of the student's work. In cases when this mark is given the student must complete the work assigned by the instructor by the end of the next semester in which that subject is again offered or the mark becomes F.

Raising Grade of D

Work of mark D, or of any passing mark, cannot be raised to a higher mark except by repeating the course. A student who repeats a course in which he failed or for which he has received credit for work done at the University, or elsewhere, must meet all the requirements of the course, including regular attendance, laboratory work, and examinations. His final mark will be substituted for the mark already recorded, but he will not receive any additional credit for the course. However, the final mark received in the course will be used in determining credit and in computing the over-all average.

Promotion to the Next Class

To be promoted to the next class freshmen and sophomores must make a grade-point average of 1.5 in the regularly scheduled work and juniors must make and

maintain throughout their senior year a grade-point average of 2.0 in the regularly scheduled work.

Probation for Low Scholarship

Any student who fails more than one-fifth of the semester credit hours for which he is registered is placed on probation.

A student on probation must pass all the semester credit hours for which he is scheduled and attain a total grade point value five in excess of the scheduled credit hours.

Dismissal for Low Scholarship

Any student who fails more than half of the semester credit hours for which he is registered is dismissed from the School and is required to report to the Dean's Office for dismissal procedures.

Grades of Withdrawing Students

The record of students who withdraw is computed as follows:

Before five weeks of the semester has passed	WX
After five weeks of the semester has passed, if work has been of passing grade	WP
After five weeks of the semester has passed, if work has been of failing grade	WF

Classification

Students having 0-29 credit hours are classified as Freshmen.

Students having 30-65 credit hours with a grade-point average of 1.5 are classified as Sophomores.

Students having 65-105 credit hours with a grade-point average of 1.5 are classified as Juniors.

Students having 105-139 credit hours with a grade-point average of 2.0 in the work of the Junior year are classified as Seniors.

Senior students must maintain a grade-point average of 2.0 and have 140 credit hours to be considered as candidates for graduation.

Requirements for Graduation

The degree of Bachelor of Science in Pharmacy will be conferred upon students who have spent at least the senior year in residence at the School of Pharmacy, who have been accredited with 140 semester hours' instruction, and who have attained a grade point average of 1.75 or above.

Transcripts of Records

Students or alumni desiring transcripts of scholastic records may obtain them from the Registrar. The University rules regarding the issuance of transcripts are as follows: one copy of a student's record is made without charge; for additional copies, there is a fee of one dollar for each transcript, except when more than one copy is requested at the same time. In that case, one dollar is charged for the first copy and fifty cents for each additional copy.

Transcript records are of two kinds:

- (a) Informal transcripts which may be obtained by the student or alumnus for such personal use as he may wish; and
- (b) Official transcripts, bearing the University seal, which are forwarded, on request, to educational institutions, Government agencies, etc., as attested evidence of the student's record at the School of Pharmacy and his honorable dismissal therefrom.

No transcript of a student's record will be furnished in the case of any student or alumnus whose financial obligations to the School of Pharmacy have not been satisfied.

REGISTRATION WITH THE MARYLAND BOARD OF PHARMACY

The Maryland Pharmacy Law, as amended in 1931, requires all students entering upon the study of Pharmacy in the State to file application with the Maryland Board of Pharmacy. The law reads as follows:

"Any person enrolling as a student in pharmacy in any school or college of pharmacy in this state shall, not later than thirty days after enrolling, file with the Secretary of the Maryland Board of Pharmacy, an application for registration as a student of pharmacy in which said application he shall be required to furnish such information as the Board may deem appropriate, and simultaneously with the filing of said application, shall pay the Board a fee of one dollar; all such students of pharmacy shall, at the beginning of any subsequent school or college year, submit to the said Board a sworn statement of any and all actual drugstore experience acquired during the preceding vacation months."

LICENSURE REQUIREMENTS OF THE MARYLAND BOARD OF PHARMACY

The Maryland Board of Pharmacy will grant a certificate of registration to those persons deemed competent, after examination, by said Board of Pharmacy. Any person of good moral character who has attained the age of twenty-one years, is a graduate of a reputable school or college of pharmacy, and has completed one year as a registered apprentice in a drug store or pharmacy approved by said Board of Pharmacy for such purposes may sit for examination given for the purpose of registration.

A student may not obtain credit for practical experience in a drug store or pharmacy acquired prior to attendance as a regular student in a school or college of pharmacy or while in attendance at said school or college of pharmacy. Effective January 1, 1957, four months of the required practical pharmacy experience as a registered apprentice must be acquired subsequent to graduation from a recognized school or college of pharmacy, in a drug store or pharmacy approved by the Board for such purposes.

Prospective students are advised to contact the Secretary of the Maryland Board of Pharmacy, 2411 N. Charles Street, Baltimore 18, Maryland, for further information relative to the requirements for eligibility for licensure.

DEPARTMENT

The University reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his or her health, or to the health of others, or whose conduct is not satisfactory to the authorities of the University.

Students of the last classification may be asked to withdraw even though no specific charge be made against them.

EMPLOYMENT

A student should be prepared to finance his education during the entire period of attendance, as all of his time should be spent in the preparation and completion of the scheduled work. Baltimore offers a number of opportunities to secure suitable employment, but it is recommended that students refrain from working during the school session.

HOUSING

The University of Maryland does not provide any housing accommodations in Baltimore. The School assists students in finding living accommodations.

PARKING

The University of Maryland does not provide any parking facilities on university parking lots for students.

LIBRARY REGULATIONS

Loan Regulations:

Loan periods have been established according to demand for and protection of books, journals and other materials:

Reserve Books: 3:50 p. m.-11 a. m. Advance reserves accepted, but no renewals.

Current Journals: One-day circulation for latest issue; others, two weeks.

Reference Books: Use in library only for specified reference material.

All Other Books and Journals: Two weeks (plus one renewal of two weeks).

Fines:

Fines are imposed to assure that all students may have equal access to books:

Reserve Books: 15¢ for first hour; 5¢ for each additional hour, or fraction thereof.

Other Loans: 5¢ per day.

Lost Books: List price of the book. (Losses should be reported immediately.)

All books must be returned, lost books replaced or paid for, and fines paid before a student can finish the year in good standing.

PROFESSORSHIPS, GRADUATE FELLOWSHIPS AND GRANTS

The Emerson Professorship of Pharmacology

Captain Isaac E. Emerson, of Baltimore, gave to the School of Pharmacy in 1927, a sum of money to establish a professorship of Pharmacology. The first appointment was made in 1930 when Dr. Marvin R. Thompson was designated Emerson Professor of Pharmacology. The chair has subsequently been held by Dr. Clifford W. Chapman. Dr. Casimir T. Ichniowski, the present incumbent, was appointed June 15, 1951.

American Foundation for Pharmaceutical Education Fellowships

The American Foundation for Pharmaceutical Education offers annual fellowships of one thousand to fifteen hundred dollars to promising graduate students desirous of doing research in pharmacy, pharmaceutical chemistry, pharmacology, and pharmacognosy; non-veteran students may also apply for an additional allowance of five hundred dollars for tuition, fees, and supplies. Address applications directly to the American Foundation for Pharmaceutical Education, 1507 M Street, N. W., Washington 5, D. C.

The H. A. B. Dunning Research Fellowship

Dr. H. A. B. Dunning, an alumnus of the School of Pharmacy, sometime associate professor of chemistry, and prominent manufacturing pharmacist of Baltimore, has contributed since 1930 a sum of money annually to maintain a research fellowship in pharmaceutical chemistry. The fellowship is open to promising graduate students interested in pharmaceutical chemistry.

Centennial Research Fund Fellowships

At the celebration of the hundredth anniversary of the founding of the School of Pharmacy, a sum of money was collected to provide two fellowships for research studies in the following fields: pharmacy, pharmaceutical chemistry, pharmacology, bacteriology, and pharmacognosy. The selection of candidates for these fellowships will be made by the Faculty with the approval of the Dean.

The Hudnut Sales Co. Fellowship

The Hudnut Sales Company of New York contributes sufficient funds to provide a fellowship paying \$1000.00 annually for two years for research in pharmaceutical chemistry and the allied sciences.

The Noxzema Foundation Fellowship

The Noxzema Foundation, Inc. is contributing in 1956 a fund not to exceed \$1600.00 for a graduate fellowship open to United States citizens. A candidate will be selected on the basis of his educational qualifications by the Fellowship Committee of the School of Pharmacy of the University of Maryland to which the Noxzema Foundation, Inc. may appoint a non-voting member. This fellowship may be renewed annually at the discretion of the grantors.

Research Grant of the Alumni Association of the School of Pharmacy

The Alumni Association of the School of Pharmacy gives to the School each year the sum of \$100.00 to be used as a research grant for a student selected by the committee on the Research Grant of the Alumni Association to enable the student to engage in pharmaceutical research in the School of Pharmacy. The research conducted must be of general pharmaceutical interest and must be accepted upon completion for publication in one of the pharmaceutical journals.

ASSISTANTSHIPS AND INTERNSHIPS IN HOSPITAL PHARMACY*Graduate Assistantships*

Graduate assistantships, covering tuition and laboratory fees and carrying a stipend of \$1350.00 for a ten-month academic year, are available to qualified students

giving fourteen hours of laboratory and teaching services to the departments in which they serve. Such assistants can usually carry two-thirds of the normal graduate work.

Internships in Hospital Pharmacy

The School of Pharmacy, together with the Graduate School of the University of Maryland and the Pharmacy Department of The Johns Hopkins Hospital, offer annually to qualified graduate pharmacists several internships in hospital pharmacy. The appointments, beginning September first, run for twenty-two months. Appointees devote half time to hospital pharmacy service and half time to graduate work leading to the Master of Science degree granted by the University of Maryland and a certificate of internship awarded by The Johns Hopkins Hospital. The Hospital provides a stipend of \$150.00 per month and the School of Pharmacy reduces tuition fees for these candidates by 25%.

Complete information on this program may be secured by addressing inquiries to the Chief Pharmacist, the Johns Hopkins Hospital, Baltimore 5, Maryland, or the Dean of the School of Pharmacy.

UNDERGRADUATE SCHOLARSHIPS

The Charles Landon Henry Memorial Scholarship

In memory of her husband, Charles Landon Henry, for many years a member of the Maryland Pharmaceutical Association, Mrs. Nora Howard Henry has endowed a scholarship worth \$100.00 to be awarded annually by the Faculty to a senior student who has shown superior proficiency in practical and commercial pharmacy.

American Foundation for Pharmaceutical Education Scholarships

The American Foundation for Pharmaceutical Education makes available scholarships worth \$100.00 per semester to qualified junior and senior students who have maintained an average of "B" or above and who are in need of financial assistance to complete their schooling.

Alumni Association School of Pharmacy Scholarship Fund

The Alumni Association of the School of Pharmacy of the University of Maryland makes available annually scholarships worth \$100.00 per semester to qualified sophomore, junior and senior students who have maintained a superior scholastic average and who are in need of financial assistance to complete their schooling.

Read Drug and Chemical Co. Scholarships

The Read Drug and Chemical Co., of Baltimore, Maryland, contributes funds to provide scholarships paying \$100.00 per semester to qualified sophomore, junior and senior students who have maintained a superior scholastic average and who are in need of financial assistance to complete their schooling.

The Charles Caspari, Jr., Memorial Fund

In memory of Prof. Charles Caspari, Jr., former dean of the School of Pharmacy, a number of his friends and Alumni have made an endowment for a scholarship worth \$100.00 annually.

The Noxzema Foundation Scholarships

The Noxzema Foundation, Inc. is contributing in 1956 a fund to provide one or two undergraduate scholarships not to exceed \$500 each, open to citizens of the United States. Candidates will be selected on the basis of their educational qualifications by the Scholarship Committee of the School of Pharmacy of the University of Maryland to which the Noxzema Foundation, Inc. may appoint a non-voting member. This scholarship may be renewed annually at the discretion of the grantors.

Rose Hendler Memorial Fund

L. Manuel Hendler and Family have established a loan fund in memory of Mrs. Rose Hendler for needy students. This fund is available to qualified junior and senior students only, and loans therefrom are made upon the recommendation of the Dean.

HONORS AND AWARDS

The Dean's Honor List

The Dean publishes at the end of each semester a list of those students who have maintained an average of "B" or better during the semester. Students whose names appear on the list both semesters receive the School's academic medal at the Honors Day Convocation held in June of each year.

Rho Chi Honorary Pharmaceutical Society

Omicron Chapter of Rho Chi, national honorary pharmaceutical society, was established at the University of Maryland in 1930. Charters for chapters of this organization are granted only to groups in schools or colleges who are members in good standing of the American Association of Colleges of Pharmacy. Eligibility for membership in the Society is based on high attainment in scholarship, character, personality, and leadership. All candidates selected for membership must have completed seventy-five credit hours of college work and must be approved by the Dean of the School of Pharmacy.

The Society also awards annually a United States Dispensatory to the sophomore student of high moral character who, having completed forty-eight credit hours of college work, has attained the highest scholastic average in his class and a grade-point average of 3.0 or above.

The School of Pharmacy Gold Medal

A gold medal is awarded annually to the candidate for the degree of Bachelor of Science in Pharmacy who has attained the highest general average, provided that this average is not below the grade of "B". Certificates of Honor are awarded to the three students having the next highest general average, provided these averages do not fall below the grade of "B".

Honorable mention is made annually of the first three Junior students having the highest general average, provided this average does not fall below the grade of "B".

Only courses taken at the University of Maryland are considered in awarding these honors.

The William Simon Memorial Prize

In honor of the late Dr. William Simon, for thirty years a professor of chemistry in the School of Pharmacy, a gold medal is awarded annually by the Faculty to a candidate for the degree of Bachelor of Science in Pharmacy who has done superior work in the field of practical and analytical chemistry. The recipient must stand high in all subjects. In recommending a student for the prize, the professor of chemistry is guided in his judgment of the student's ability by observation and personal contact as well as by grades.

The Andrew G. DuMez Medal

In memory of Dr. Andrew G. DuMez, late dean and professor of pharmacy at the School of Pharmacy, Mrs. Andrew G. DuMez has provided a gold medal to be awarded annually by the Faculty to a candidate for the degree of Bachelor of Science in Pharmacy, for superior proficiency in pharmacy.

The L. S. Williams Practical Pharmacy Prize

The late L. S. Williams left a trust fund the income of which is awarded annually by the Faculty of the School of Pharmacy to the senior student having the highest general average throughout the course in practical and dispensing pharmacy.

The Conrad L. Wich Pharmacognosy Prize

In appreciation of assistance which the Maryland College of Pharmacy extended to him as a young man, Mr. Conrad L. Wich provided a fund the income from which is awarded annually by the Faculty of the School to the senior student who has done exceptional work throughout the course in Pharmacognosy.

David Fink Memorial Prize

In memory of David Fink '24, Mr. Samuel I. Raichlen gives a new United States Dispensatory as a prize to the senior student recommended by the Faculty for proficiency in the general practice of pharmacy.

Beta Chapter, Phi Alpha Fraternity Cup

The Beta Chapter of the Phi Alpha Fraternity provides a cup in memory of Joseph J. Fine, Melvin S. Adalman and Albert Goldberg, who died in the service of their country. This cup is awarded annually to the senior student selected by the Faculty as having exhibited outstanding qualities of character and leadership.

Kappa Chapter, Alpha Zeta Omega Prize

The Kappa Chapter of the Alpha Zeta Omega Fraternity provides a prize to be awarded annually to the senior student chosen by the Faculty for proficiency in pharmacology.

Epsilon Graduate Chapter, Lambda Kappa Sigma Sorority Prize

The Epsilon Graduate Chapter of the Lambda Kappa Sigma Sorority provides annually a key which is awarded to the senior student selected by the Faculty for outstanding proficiency in Pharmacy Administration.

Merck Awards

Merck & Company, Inc., Rahway, New Jersey, offer a set of valuable reference books to the senior student who attains a high standing in pharmacy. A second set of books is given to the senior student who has a high standing in pharmaceutical chemistry.

Bristol Laboratories, Inc. Award

A copy of Gould's "Medical Dictionary" is made available by Bristol Laboratories, Inc. to the senior student who has contributed the most to pharmacy through his extra-curricular activities.

Extra Curricular Awards

Students who have given freely of their time for the betterment of the School in extra-curricular activities, receive extra curricular keys at the annual Honors Day Convocation.

STUDENT ORGANIZATIONS

Student Government Alliance

The Student Government Alliance is an organization of students established for the purpose of aiding in the internal administration of the school, for organizing all extra-curricular organizations and activities of the student body, and for coordinating the activities of the student body with those of the Faculty and Administration to foster mutual understanding and cooperation. The Executive Council of the Student Alliance is composed of the officers of the Student Government Alliance, the Presidents of the Senior, Junior, Sophomore and Freshman Classes, four delegates at large, one to be elected from each class, a fraternity delegate, a publications delegate, and a Faculty Advisory Council consisting of the Dean, the Faculty Advisor to the Council, and the four class advisors.

Student Branch of the American Pharmaceutical Association

A Student Branch of the American Pharmaceutical Association has been organized in the School of Pharmacy of the University of Maryland. The purpose of the Branch is to encourage in the broadest and most liberal manner the advancement of pharmacy as a science and as a profession in accordance with the objectives stated in the Constitution of the American Pharmaceutical Association, especially in fostering education in matters involving pharmacy in all of its branches and its application and aiding in promoting the public health and welfare.

Students' Auxiliary of the Maryland Pharmaceutical Association

The Students' Auxiliary of the Maryland Pharmaceutical Association was organized in November 1935. The object of the Auxiliary is to provide for the participation of students in the activities of the Maryland Pharmaceutical Association to the end that their interest in pharmaceutical association work may be awakened and guided and to familiarize them with the conditions existing in and the problems confronting the profession.

HANDBOOK OF SCHOOL OF PHARMACY

The Student Alliance publishes a Handbook of the School of Pharmacy which is available to all students. This Handbook contains further information about student life at the School.

ALUMNI ASSOCIATION

The Alumni Association of the School of Pharmacy of the University of Maryland was established in May 1871. This Association continued a separate existence until the General Alumni Association of the University of Maryland was formed. Following the organization of it, the Society remained dormant until June 1926 when it was reorganized as the Alumni Association of the School of Pharmacy of the University of Maryland.

The following are its officers:

OFFICERS (1955-56)

John Wannenwetsch, *Honorary President*

Gordon Mouat, *President*

Norman Levin, *First Vice-President*

Nelson Warfield, *Second Vice-President*

Francis Balassone, *Secretary*

Mrs. Frank Budacz, *Treasurer*

EXECUTIVE COMMITTEE (Elected Members)

Victor H. Morgenroth, Jr.

Samuel Portney

George J. Stiffman

COMMITTEE ON SCHOOL OF PHARMACY OF THE MARYLAND
PHARMACEUTICAL ASSOCIATION

When the School of Pharmacy became a part of the State University in 1920, the Maryland Pharmaceutical Association appointed a standing committee known as the Committee on the School of Pharmacy. The duties of this group are to represent the Association in all matters pertaining to the School of Pharmacy and pharmaceutical education. The present members of the Committee are:

Lloyd N. Richardson, *Chairman*

John F. Wannenwetsch, *Co-Chairman*

Halcolm S. Bailey

Frank Block

Dr. H. A. B. Dunning

Lester R. Martin

William C. McKenna

Alexander J. Ogrinz, Jr.

Samuel I. Raichlen

Simon Solomon

CURRICULUM

COURSES, HOURS AND CREDITS

TITLE AND NUMBER OF COURSE	FIRST SEMESTER				SECOND SEMESTER			
	Hrs. Per Week				Hrs. Per Week			
	Didactic	Lab'y	Total	Credits	Didactic	Lab'y	Total	Credits
FRESHMAN YEAR								
†Chemistry 1, 3, General Inorganic and Qualitative Analysis.....	2	6	8	4	2	6	8	4
†English 1, 2, Survey and Composition.....	3		3	3	3		3	3
†Mathematics 10 or 15.....	3		3	3				
†Mathematics 11 or 17.....					3		3	3
†Modern Language 1, 2, or 6, 7, French or German.....	3		3	3	3		3	3
†Speech 1, 2, Public Speaking.....	1		1	1	1		1	1
†Zoology 1, General.....	2	6	8	4				
†Zoology 4, Animal Kingdom.....					2	3	5	3
				18				17
SOPHOMORE YEAR								
Chemistry 15, Quantitative Analysis.....	2	6	8	4				
†Chemistry 35, 37, Elementary Organic.....	3		3	2	3		3	2
†Chemistry 36, 38, Elementary Organic Laboratory.....		4	4	2		4	4	2
Pharmacy 1, 2, General.....	4	3	7	5	4	3	7	5
†Physics 10, 11, General.....	3	2	5	4	3	2	5	4
Physiology 22, General.....					4	3	7	5
				17				18
JUNIOR YEAR								
Bacteriology 1, General.....	2	4	6	4				
Bacteriology 115, Serology and Immunology.....					2	4	6	4
Chemistry 53, Pharmaceutical Testing and Assaying.....					2	6	8	4
Chemistry 153, Biological.....	4	4	8	5				
Pharmacognosy 51, 52, General.....	2	5	7	4	2	5	7	4
Pharmacy 51, 52, Dispensing.....	2	6	8	4	2	6	8	4
Pharmacy 61, History of Pharmacy.....	1		1	1				
Pharmacy Administration 37, Fundamentals of Economics.....					3		3	3
				18				19
SENIOR YEAR (Required)								
Chemistry 111, 113, Chemistry of Medicinal Products.....	3		3	2	3		3	2
First Aid 1, Standard.....	1		1					
Pharmacology 81, 82, General.....	3	4	7	4	3	4	7	4
Pharmacy 101, 102, Advanced Dispensing.....	2	3	5	3	2	3	5	3
Pharmacy Administration 21, Accounting.....	1	3	4	2				
Pharmacy Administration 62, Jurisprudence.....				7	3		3	3
Electives.....				7				5
				18				17
(Electives—Retail Major)								
Pharmacognosy 61, Entomology for Pharmacists.....	2	3	5	3				
Pharmacognosy 62, Animal Health Products or Pharmacy 132, Cosmetics.....					3		3	3
Pharmacy 121, Hospital Pharmacy Administration.....					2	3 ^{or}	5	3
or Pharmacy 81, Pharmacy Literature.....	2		2	2				
Pharmacy Administration 71, Management.....	2		2	2				
Pharmacy Administration 72, Drug Marketing.....					2		2	2
(Electives—Pre-Graduate Major)								
†English 3, 4, Composition and World Literature.....	3		3	3	3		3	3
or †Language 6, 7, Intermediate Scientific German.....	3		3	3	3		3	3
†Mathematics 20, 21, Calculus.....	3		3	3	3		3	3
(Electives—Special Cases)								
Chemistry 99, Glassworking.....		3	3	1		3	3	1
Chemistry 112, 114, Chemistry of Medicinal Products.....		4	4	2		4	4	2

† Instruction in these courses given by the College of Arts and Sciences.

‡ The electives must be approved by the Dean.

CURRICULUM

SUMMARY OF HOURS AND CREDITS

COURSE	Didactic	Laboratory	Total	Credit hours
FRESHMAN YEAR				
Chemistry 1, 3.....	64	192	256	8
English 1, 2.....	96		96	6
Mathematics 10, 15.....	48		48	3
Mathematics 11, 17.....	48		48	3
Modern Language 1, 2 or 6, 7.....	96		96	6
Speech.....	32		32	2
Zoology 1, 4.....	64	144	208	7
Total.....	448	336	784	35
SOPHOMORE YEAR				
Chemistry 15.....	32	96	128	4
Chemistry 35, 37.....	96		96	4
Chemistry 36, 38.....		128	128	4
Pharmacy 1, 2.....	128	96	224	10
Physics 10, 11.....	96	64	160	8
Physiology 22.....	64	48	112	5
Total.....	416	432	848	35
JUNIOR YEAR				
Bacteriology 1.....	32	64	96	4
Bacteriology 115.....	32	64	96	4
Chemistry 53.....	32	96	128	4
Chemistry 153.....	64	64	128	5
Pharmacognosy 51, 52.....	64	160	224	8
Pharmacy 51, 52.....	64	192	256	8
Pharmacy 61.....	16		16	1
Pharmacy Administration 37.....	48		48	3
Total.....	352	640	992	37
SENIOR YEAR (Required)				
Chemistry 111, 113.....	96		96	4
First Aid.....	16		16	
Pharmacology 81, 82.....	96	128	224	8
Pharmacy 101, 102.....	64	96	160	6
Pharmacy Administration 21.....	16	48	64	2
Pharmacy Administration 62.....	48		48	3
Electives.....	224†	160†	384†	12
Total.....	560	432	992	35
(Electives—Retail Major)				
Pharmacognosy 61.....	32	48	80	3
Pharmacognosy 62 or.....	48		48	3
Pharmacy 132.....	32	48	80	3
Pharmacy 121 or.....	32		32	2
Pharmacy 81.....	32		32	2
Pharmacy Administration 71.....	32		32	2
Pharmacy Administration 72.....	32		32	2
(Electives—Pre-Graduate Major)				
English 3, 4 or.....	96		96	6
Language 6, 7.....	96		96	6
Mathematics 20, 21.....	96		96	6
(Electives—Special Cases)				
Chemistry 99.....		96	96	2
Chemistry 112, 114.....		128	128	4
SUMMARY				
Freshman Year.....	448	336	784	35
Sophomore Year.....	416	432	848	35
Junior Year.....	352	640	992	37
Senior Year.....	560	432	992	35
Total.....	1,776	1,840	3,616	142*

† Average.

* A minimum of 140 credits required for graduation

DESCRIPTION OF COURSES*

BACTERIOLOGY

1. BACTERIOLOGY, GENERAL—(4) Junior year, first semester, two lectures, two laboratories. Shay and Haubrick.

Introduction to general bacteriology with special emphasis on the study of pathogenic microorganisms, including the public health aspects of the prevention and control of communicable diseases.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

115. SEROLOGY AND IMMUNOLOGY—(4) Junior year, second semester, two lectures, two laboratories, Shay and Haubrick.

Prerequisite—Bacteriology 1.

A study of the principles of immunity, including the preparation and use of biological products employed in the prevention and treatment of infectious diseases.

FOR GRADUATES

200, 201. CHEMOTHERAPY—(1, 1) One lecture. (Given in alternate years.) Shay.

A study of the chemistry, toxicity, pharmacology and therapeutic value of drugs employed in the treatment of parasitic diseases.

202, 203. REAGENTS AND MEDIA—(1, 1) One Lecture. (Given in alternate years.) Shay.

A study of the methods of preparation and use of bacteriological reagents and media.

210. SPECIAL PROBLEMS IN BACTERIOLOGY. Shay.

A laboratory course on selected problems in bacteriology. Credit determined by the amount and quality of work performed.

211. PUBLIC HEALTH—(1-2) One lecture. Shay.

Prerequisites—Bacteriology 1, 115.

Lectures and discussions on the organization and administration of state and municipal health departments and private health agencies. The courses will also include a study of laboratory methods.

221. RESEARCH IN BACTERIOLOGY. Shay.

Credit determined by the amount and quality of the work performed.

CHEMISTRY

1, 3. GENERAL INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS—(4, 4) Freshman year, two lectures, two laboratories. Blaustein and MacHamer.

A study of the metals and non-metals with emphasis on chemical theory and important generalizations. The laboratory work deals with fundamental principles, the preparation and purification of compounds, and the systematic qualitative analysis of the more common cations and anions.

35, 37. ELEMENTARY ORGANIC CHEMISTRY—(2, 2) Sophomore year, two lectures. Miller and Weinberg.

Prerequisite—Chemistry 1, 3.

A study of the fundamentals of organic chemistry.

36, 38. ELEMENTARY ORGANIC LABORATORY—(2, 2) Sophomore year, one laboratory. Miller and Weinberg.

*Courses intended primarily for freshmen and sophomores are numbered 1-49; for juniors and seniors 50-99; for advanced undergraduates and graduates 100-199; and for graduates only 200-299.

The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. A laboratory period is equivalent to one lecture or recitation period.

Prerequisite—Chemistry 35, 37 or current registration therein.

A study of the general procedures used in organic laboratory.

15. QUANTITATIVE ANALYSIS—(4) Sophomore year, first semester, two lectures and two laboratories. Grabowski.

Prerequisite—Chemistry 1, 3.

A study of the gravimetric and volumetric procedures and theory, and their application to pharmaceutical analyses.

53. PHARMACEUTICAL TESTING AND ASSAYING—(4) Junior year, second semester, two lectures and two laboratories. Grabowski.

Prerequisites—Chemistry 15, 35, 37, or concurrent registration therein.

Quantitative methods applied to the chemical assay of crude drugs and of official preparations, with an introduction to instrumental methods.

99. GLASSWORKING—(1-1) Laboratory, senior year, either semester. Miller.

Prerequisite—Consent of the instructor.

Simple operations in the manipulation of glass, repair and construction of apparatus.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

111, 113. CHEMISTRY OF MEDICINAL PRODUCTS—(2, 2) Senior year, three lectures. Miller.

Prerequisites—Chemistry 35, 37, 53.

A survey of the structural relationships, the synthesis and chemical properties of medicinal products.

112, 114. CHEMISTRY OF MEDICINAL PRODUCTS—(2, 2) Senior year, two laboratories. Miller.

Prerequisite—Chemistry 111, 113, or may be taken simultaneously with Chemistry 111, 113.

Laboratory exercises dealing with important and characteristic chemical properties of pharmaceutical and medicinal products.

142, 144. ADVANCED ORGANIC LABORATORY—(2, 2) Any one or two semesters. Miller.

Prerequisite—Chemistry 37, 38, or equivalent.

Laboratory work devoted to more difficult organic preparations and a study of the quantitative determination of carbon, hydrogen, nitrogen and halogen in organic compounds.

146, 148. IDENTIFICATION OF ORGANIC COMPOUNDS—(2, 2) One lecture, two laboratories. Miller.

Prerequisite—Chemistry 113, 114, or equivalent.

The systematic identification of organic compounds.

153. BIOLOGICAL CHEMISTRY—(5) Junior year, first semester, four lectures and one laboratory. Schmidt, Herbst, Vanderlinde, Vasington, and Brown.

Prerequisites—Chemistry 35, 37.

Lectures and laboratory exercises devoted to the composition of living organisms and the chemical and physical processes which occur during health and in disease.

187, 189. PHYSICAL CHEMISTRY—(3, 3)—Three lectures. Estabrook.

Prerequisites—Chemistry 15, 35, 37 and Physics 10, 11.

A study of the laws and theories of chemistry, including the gas laws, kinetic theory, liquids, solutions, elementary thermodynamics, thermo-chemistry, equilibrium, chemical kinetics and electro-chemistry.

188, 190. PHYSICAL CHEMISTRY—(2, 2) Two laboratories. Estabrook.
Prerequisites—Chemistry 187, 189 or may be taken simultaneously with Chemistry 187, 189.

Quantitative experiments are performed which demonstrate physio-chemical principles, and acquaint the student with precision apparatus.

FOR GRADUATES

201, 203. SURVEY OF PHARMACEUTICAL CHEMISTRY—(2, 2) Two lectures. Miller.

Prerequisite—Chemistry 111, 113.

A study of the terpenes, carotenes, steroids and stereoisomerism.

211, 213. CHEMISTRY OF THE ALKALOIDS—(2, 2) Two lectures. Miller.

Prerequisite—Chemistry 111, 113.

A survey of the chemical structure and reactions of pharmacologically active bases.

220. ADVANCED PHARMACEUTICAL SYNTHESIS—(2-6) Laboratory and conferences. Miller.

Prerequisite—Chemistry 142, 144.

Application of synthetic procedures in the preparation of various medicinal chemicals and their intermediates.

222. ADVANCED PHARMACEUTICAL ANALYSIS—(1-4) Laboratory and conferences. Miller.

Prerequisite—Chemistry 146, 148.

A laboratory study of the analytical procedures and methods as applied to official, proprietary, natural and synthetic drugs, their intermediates and derivatives.

230. PHARMACEUTICAL CHEMISTRY SEMINAR—(1) Each semester. Miller.

Required of students majoring in pharmaceutical chemistry.

Reports of progress and survey of recent developments in pharmaceutical chemistry.

235. RESEARCH IN PHARMACEUTICAL CHEMISTRY—Credit determined by the amount and quality of work performed. Miller.

258. THE IDENTIFICATION OF ORGANIC COMPOUNDS (Advanced Course)—(2-4) Either semester. Two to four laboratories. Miller.

Prerequisite—Chemistry 146, 148 or equivalent.

Laboratory work devoted to the identification of pure organic substances and mixtures.

ENGLISH

1, 2. SURVEY AND COMPOSITION—(3, 3) Freshman year, three lectures. Ballman.

Prerequisite—Four units of high school English.

A study of style, syntax, spelling and punctuation, combined with a historical study of English and American literature of the nineteenth and twentieth centuries. Written themes, book reviews and exercises.

3, 4. COMPOSITION AND WORLD LITERATURE—(3, 3) Elective, three lectures. Ballman.

Prerequisite—English 1, 2.

Practice in composition. An introduction to world literature, foreign classics being read in translation.

SPEECH

1, 2. PUBLIC SPEAKING—(1, 1) Freshman year, one lecture. Ballman.

The principles and techniques of oral expression, visible and audible; the preparation and delivery of short original speeches; impromptu speaking; reference readings, short reports, etc.

FIRST AID

1. STANDARD FIRST AID COURSE—Senior year, first semester, one lecture, one demonstration.

Given by an instructor from the Baltimore Chapter of the American Red Cross.

MATHEMATICS

0. BASIC MATHEMATICS—(0) Freshman year, first semester, three lectures. Richeson.

Required of students whose curriculum calls for Math 10 and who fail the qualifying examination for this course.

The fundamental principles of algebra.

10. ALGEBRA—(3) Freshman year, first and second semesters, three lectures. Richeson.

Prerequisite—One unit of algebra.

Fundamental operations, factoring, fractions, linear equations, exponents and radicals, logarithms, quadratic equations, variation, binomial theorem, and theory of equations.

11. TRIGONOMETRY AND ANALYTIC GEOMETRY—(3) Freshman year, second semester, three lectures. Richeson.

Prerequisite—Mathematics 10 or 15. Required of those students who do not offer one-half unit of trigonometry.

Trigonometric functions, identities, the radian and mil, graphs, addition formulas, solution of triangles, coordinates, locus problems, the straight line and circle, conic sections and graphs.

15. COLLEGE ALGEBRA—(3) Freshman year, first semester, three lectures. Richeson.

Prerequisite—High school algebra completed.

Fundamental operations, variation, functions and graphs, quadratic equations, theory of equations, binomial theorem, complex numbers, logarithms, determinants and progressions.

17. ANALYTIC GEOMETRY—(3) Freshman year, second semester three lectures. Richeson.

Prerequisite—High school trigonometry and mathematics 15.

Coordinates, locus problems, the straight line and circle, graphs, transformation of coordinates, conic sections, parametric equations, transcendental equations, and solid analytic geometry.

20, 21. CALCULUS—(3, 3) Three lectures. Richeson.

Prerequisite—Mathematics 15 and 17 and approval of instructor.

Limits, derivatives, differentials, maxima and minima, curve sketching, rates, curvature, kinematics, integration, geometric and physical applications of integration, partial derivatives, space geometry, multiple integrals, infinite series and differential equations. Given in alternate years.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

152, 153. MATHEMATICAL STATISTICS—(2, 2) Prerequisite, Mathematics 20, 21. Richeson.

Frequency distributions and their parameters, multivariate analysis and correlation, theory of sampling, analysis of variance, statistical inference. Illustrations will be drawn from the biological sciences. Given in alternate years.

MODERN LANGUAGES

1, 2. FRENCH—ELEMENTARY—(3, 3) Freshman year, three lectures. Schradieck.

Students who offer two units in French for entrance, but whose preparation is not adequate for second-year French, receive half credit for this course.

Elements of grammar, composition, pronunciation and translation.

Not offered 1955-56.

1, 2. GERMAN—ELEMENTARY—(3, 3) Freshman year, three lectures. Schradieck.

Students who offer two units in German for entrance, but whose preparation is not adequate for second-year German receive half credit for this course.

Elements of grammar, composition, pronunciation and translation.

Students will be assigned to one of the two languages by the department. The assignment will ordinarily be made on the basis of the student's previous training.

Six semester hours College credit in Spanish will be accepted as satisfying the Modern Language requirement.

6, 7. INTERMEDIATE SCIENTIFIC FRENCH—(3, 3) Three lectures. Schradieck.

Prerequisite—French 1 and 2 or equivalent.

Rapid grammar review, exercises in pronunciation, reading of scientific texts.

6, 7. INTERMEDIATE SCIENTIFIC GERMAN—(3, 3) Three lectures. Schradieck.

Prerequisite—German 1 and 2 or equivalent.

Review of grammar and reading of scientific texts.

PHARMACOGNOSY

51. PHARMACOGNOSY, GENERAL—(4) Junior year, first semester, two lectures, two laboratories. Slama and Kallelis.

Prerequisites—Zoology 4, Chemistry 35, 36, 37, 38.

A study of the cultivation, collection and commerce of crude vegetable drugs with special emphasis on the physician and microscopical characteristics used in their identification and in the detection of adulteration.

52. PHARMACOGNOSY, GENERAL—(4) Junior year, second semester, two lectures, two laboratories. Slama and Kallelis.

Prerequisites—Zoology 4, Chemistry 35, 36, 37, 38, Pharmacognosy 51.

A continuation of pharmacognosy 51 with instruction covering animal drugs, antibiotics and allergy-producing pollens.

61. PHARMACOGNOSY, ENTOMOLOGY FOR PHARMACISTS—(3). Senior year, first semester, two lectures and one laboratory. Slama and Kallelis.

Prerequisites—Zoology 4, Chemistry 35, 36, 37, 38, Pharmacognosy 51, 52.

Discussion of the principal types of pests commonly found in the household and the industries, including those which attack farm and garden crops; their recognition, life history, habits and methods of control.

62. PHARMACOGNOSY, ANIMAL HEALTH PRODUCTS—(3). Senior year, second semester, three lectures. Slama.

Prerequisites—Zoology 4, Physiology 22, Pharmacology 81.

A study of the principal therapeutic agents that are used in the treatment and prevention of animal diseases.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

101, 102. TAXONOMY OF THE HIGHER PLANTS—(2, 2) One lecture and one laboratory. Given in alternate years. Slama.

Prerequisite—Pharmacognosy 51, 52.

A study of the kinds of seed plants and ferns, their classifications, and field work on local flora. Instruction will be given in the preparation of an herbarium.

111, 112. PLANT ANATOMY—(4, 4) Two lectures and two laboratories. Slama.

Prerequisite—Pharmacognosy 51, 52.

Lectures and laboratory work covering advanced plant anatomy with special emphasis placed on the structure of roots, stems and leaves of vascular plants.

FOR GRADUATES

201, 202. ADVANCED STUDY OF VEGETABLE POWDERS—(4, 4) Two lectures and two laboratories. Slama.

Prerequisites—Pharmacognosy 111, 112.

A study of powdered vegetable drugs and spices from the structural and micro-chemical standpoints, including practice in identification and detection of adulterants. Given in alternate years.

211, 212. ADVANCED PHARMACOGNOSY—(4, 4) Two lectures and two laboratories. Slama.

Prerequisites—Pharmacognosy 111, 112.

A study of many crude drugs not ordinarily studied in other pharmacognosy courses. Special attention will be given to practical problems and to the identification and detection of adulterants.

220. RESEARCH IN PHARMACOGNOSY—Credit according to the amount and quality of work performed. Slama.

PHARMACOLOGY

81, 82. PHARMACOLOGY, GENERAL—(4, 4). Senior year, three lectures and one laboratory. Ichniowski, Gittinger, Lennox, and Roskos.

Prerequisite—Physiology 22, Biological Chemistry 153.

A study of the pharmacology, toxicology and therapeutic uses of medicinal substances, including methods of biological assay, with special reference to the drugs and preparations of the United States Pharmacopoeia and the National Formulary.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

111. OFFICIAL METHODS OF BIOLOGICAL ASSAY (4) Two lectures and two laboratories. Ichniowski and Gittinger.

Prerequisite—Pharmacology 81, 82.

A study of the methods of biological assay official in the United States Pharmacopoeia and the National Formulary.

FOR GRADUATES

201, 202. METHODS OF BIOLOGICAL ASSAY—(4, 4) Laboratory and conferences, first and second semesters. Ichniowski.

Prerequisite—Pharmacology 111.

Offered in alternate years.

211, 212. SPECIAL STUDIES IN PHARMACODYNAMICS—(4, 4) Laboratory and conferences, first and second semesters. Ichniowski.

Prerequisite—Pharmacology 81 and 82 and the approval of the instructor.

Offered in alternate years.

221, 222. SPECIAL STUDIES IN BIOLOGICAL ASSAY METHODS—(2-4), (2-4) Credit according to the amount of work undertaken after consultation with the instructor. Conferences and laboratory work. Ichniowski.

Prerequisite—Pharmacology 111, 201, 202.

Special problems in the development of biological assay methods and comparative standards.

250. RESEARCH IN PHARMACOLOGY. Ichniowski.

Properly qualified students may arrange with the instructor for credit and hours.

PHARMACY

1, 2. PHARMACY, GENERAL—(5, 5) Sophomore year, four lectures and one laboratory. Foss, Allen, Sciarra, Kokoski, Kranzler and Milio.

A study of all theory of pharmaceutical manipulations, including mathematical calculations, and the practical application of the theory to the manufacture of galenical preparations.

51, 52. PHARMACY, DISPENSING—(4, 4) Junior year, two lectures and two laboratories. Allen, Kokoski, Milio, Kranzler and Levine.

Prerequisites—Pharmacy 1, 2.

A study of the compounding and dispensing of prescriptions.

61. HISTORY OF PHARMACY—(1) Junior year, first semester, one lecture. Sciarra.

A study of the history of pharmacy from its beginning, with special emphasis on the history of American Pharmacy.

81. PHARMACY LITERATURE—(2) Senior year, first semester, two lectures. Sciarra.

A study of important periodicals and currently published papers concerned with subjects of interest to pharmacists.

FOR ADVANCED UNDERGRADUATES AND GRADUATES

101, 102. ADVANCED DISPENSING PHARMACY—(3, 3) Senior year, two lectures and one laboratory. Allen, Kokoski, Milio, Kranzler and Levine.

Prerequisites—Pharmacy 1, 2, 51, 52.

A study of the compounding of new medicinal ingredients and dispensing aids used in modern professional pharmacy, including the preparation of some important classes of pharmaceuticals on a commercial scale.

121. HOSPITAL PHARMACY ADMINISTRATION—(2) Senior year, first semester, two lectures. Purdum.

A study of hospital pharmacy practice and administration.

132. COSMETICS—(3) Senior year, second semester, two lectures and one laboratory. Allen and Sciarra.

Prerequisites—Pharmacy 1, 2, 51, 52, and 101.

A study of the composition and manufacture of cosmetic preparations including laboratory work in the formulation of these products.

FOR GRADUATES

201, 202. MANUFACTURING PHARMACY—(2, 2) Two lectures. Foss and Allen. Given in alternate years.

Prerequisites—Pharmacy 101, 102, 132.

A study of manufacturing processes and equipment employed in the manufacture of pharmaceuticals on a commercial scale.

203. 204. MANUFACTURING PHARMACY—(2, 2) Two laboratories. Foss and Allen.

Prerequisite 201, 202, or may be taken simultaneously with Pharmacy 201, 202.

Laboratory work dealing with the preparation of useful and important pharmaceuticals in large quantities.

205. MANUFACTURING PHARMACY CONTROL—(3) Three lectures. Foss. Given in alternate years.

A study of the specifications, inspection, sampling, packaging and labeling of drugs from their receipt to their shipping by pharmaceutical manufacturing plants. Includes detailed consideration of sanitary standards, the Federal Food, Drug and Cosmetic Act, and other laws affecting the production and distribution of pharmaceutical products.

211, 212. SURVEY OF PHARMACEUTICAL LITERATURE—(1, 1) One lecture. Allen and Purdum. Given in alternate years.

Lectures and topics on the literature pertaining to pharmacy, with special reference to the origin and development of the works of drug standards and the pharmaceutical periodicals.

215, 216. PRODUCT DEVELOPMENT—(2, 2) Two laboratories. Allen.

Prerequisites—Pharmacy 132, 201, 202, 203, 204.

A study of the development of new pharmaceutical preparations and cosmetics suitable for marketing.

221, 222. HISTORY OF PHARMACY—(2, 2) Two lectures. Purdum.

Lectures and assignments on the development of pharmacy in America and the principal countries of Europe. Given in alternate years.

230. PHARMACEUTICAL SEMINAR—(1) Each Semester. Foss and Allen.

Required of students majoring in pharmacy.

Reports of progress in research and surveys of recent developments in pharmacy.

231, 232. SPECIAL PROBLEMS IN PHARMACEUTICAL TECHNOLOGY—(2, 2) Two laboratories. Allen and Purdum.

A study of technical problems in the stabilization and preservation of pharmaceuticals and the various methods of compounding special prescriptions.

235. RESEARCH IN PHARMACY—Credit and hours to be arranged. Foss, Purdum and Allen.

PHARMACY ADMINISTRATION

21. ACCOUNTING—(2) Senior year, first semester, one lecture, one laboratory. Pumpian and Leavitt.

Prerequisite—Pharmacy Administration 37.

The Analysis of financial and operating statements with a study of the fundamental principles of accounting, including practice in bookkeeping.

37. FUNDAMENTALS OF ECONOMICS—(3) Junior year, second semester, three lectures. Pumpian.

A Study of the general fundamentals of Economics—production, exchange, distribution and consumption of wealth, together with methods of financing government and the consideration of economic systems.

62. JURISPRUDENCE—(3) Senior year, second semester, three lectures. Pumpian.

Fundamentals of law of importance to pharmacists; Federal and State Laws and regulations pertaining to the sale of drugs, narcotics, poisons, cosmetics and pharmaceutical preparations; Law of Contracts, Negotiable Instruments, Sales, Agency and Partnerships.

71. MANAGEMENT—(2) Senior year, first semester, two lectures. Pumpian.
Prerequisite—Pharmacy Administration 37.

A study of the business problems arising in the operation of a retail pharmacy, including ownership organization, financing, leasing, insurance, purchasing, pricing, code marking and control of inventory.

72. DRUG MARKETING—(2) Senior year, second semester, two lectures. Burbage.

A study of marketing, marketing research, advertising, selling and salesmanship, merchandising, channels of distribution, wholesaling, retailing and personnel management.

PHYSICS

- 10, 11. GENERAL PHYSICS—(4, 4) Sophomore year, three lectures, one laboratory. Estabrook and Izatt.

Prerequisites—Mathematics 10, 11 or 15, 17.

A study of the principles of mechanics, heat, wave motion, sound, light and electricity.

FOR GRADUATES AND ADVANCED UNDERGRADUATES

- 104, 105. ELECTRICITY AND MAGNETISM—(3, 3) Two lectures, one laboratory. Estabrook.

Prerequisites—Physics 10, 11 and Mathematics 20, 21.

Given according to demand.

FOR GRADUATES

- 200, 201. INTRODUCTION TO THEORETICAL PHYSICS—(5, 5) Five lectures. Estabrook.

Prerequisites—Advanced standing in Physics.

- 208, 209. THERMODYNAMICS—(2, 2) Two lectures. Estabrook.

Prerequisites—Chemistry 187, 189.

Given according to demand.

PHYSIOLOGY

22. PHYSIOLOGY, GENERAL—(5) Sophomore year, second semester, four lectures, one laboratory. Foreman, Fox, Aceto.

Prerequisite—Zoology 4.

A course in the fundamentals of human physiology, including neurophysiology, the heart and circulation, respiration, digestion, the kidney and endocrine glands.

ZOOLOGY

1. ZOOLOGY, GENERAL—(4) Freshman year, first semester, two lectures and two laboratories. Foreman and Aceto.

This course deals with the basic principles of animal life and uses a study of the anatomy and physiology of the vertebrates to demonstrate these principles.

4. ZOOLOGY, ANIMAL KINGDOM—(3) Freshman year, second semester, two lectures and one laboratory. Foreman and Aceto.

A survey of the animal kingdom with special emphasis on parasites, insects and other forms that have special economic interrelationships with man.

Both courses in zoology are intended to be practical in nature and act as a firm foundation for later required courses.

The School of Nursing

OFFICERS OF ADMINISTRATION, SCHOOL OF NURSING

WILSON H. ELKINS, B.A., M.A., Litt.B., Ph.D., President
HAROLD F. COTTERMAN, B.S., M.A., Ph.D., Dean of the Faculty
ROLAND BAMFORD, B.S., M.S., Ph.S., Dean of the Graduate School
FLORENCE M. GIPE, R.N., B.S., M.S., Ed.D., Dean
MARY K. CARL, R.N., B.S., Ph.D., Chairman, Graduate Programs in Nursing
VIRGINIA C. CONLEY, R.N., B.S., M.A., Chairman, Baccalaureate Program
MARGARET L. HAYES, R.N., B.S., M.S., Assistant to Dean, College Park Division
M. MARGARET JAMESON, A.B., M.A., Assistant Dean of Women.
ELEANOR L. SLACUM, R.N., B.S., Assistant to Dean, Baltimore Division
ETHEL M. TROY, R.N., B.S., Director, Practical Nurse Education
WILFRED TOWNSHEND, M.D., Director of Student Health
AURELIA C. WILLERS, R.N., B.A., Director, Nursing Service, University Hospital
KATHERYN S. WOHLSEN, R.N., A.B., M.N., M.A., Supervisor of Instruction, Public
Health Nursing

ASSISTANTS IN SCHOOL OF NURSING

MARY R. DAYBALL.....Administrative Assistant
VELMA L. HOFFERBERT.....Records Secretary
SIMONE HURST Librarian
IRENE KREBS Senior Stenographer
HENRIETTA ORF Junior Typist

FACULTY, SCHOOL OF NURSING

MARTHA FRANCIS BAER, Instructor of Public Health Nursing.

Diploma in Nursing, Mennonite School of Nursing, 1925; R.N., B.S., Catholic University of America, 1938; Certificate in Public Health Nursing 1951, University of Pennsylvania.

MARY K. CARL, Associate Professor of Nursing and Chairman, Graduate Programs in Nursing.

Diploma in Nursing, Maryland General Hospital School of Nursing, 1940; R.N., B.S., Johns Hopkins University, 1946; Ph.D., University of Maryland, 1951.

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Diploma in Nursing, University of Maryland, 1940; B.S., University of Maryland, 1940; R.N., M.A., University of Maryland, 1953.

PEGGY ANN DASHIELL, Assistant Instructor in Child Growth and Development.

B.S., University of Maryland, 1951.

MARCELLA Z. DAVIS, Instructor of Psychiatric Nursing.

Diploma in Nursing, Englewood Hospital School of Nursing, 1946; R.N., B.S., New York University, 1951; M.A., Teachers College, Columbia University, 1953; Fulbright Fellow, 1955-56.

DOROTHY A. DREW, Instructor of Psychiatric Nursing.

Diploma in Nursing, Cambridge City Hospital School of Nursing, 1951; R.N., B.S., Teacher's College, Columbia University, 1954; M.A., Teacher's College, Columbia University, 1955.

RUTH LENORE DYSON, Assistant Professor of Nutrition.

B.S., Michigan State University, 1939; M.S., Western Reserve University, 1952.

THERESA M. FERNANDEZ, Associate Professor of Psychiatric Nursing.

Diploma in Nursing, Staten Island School of Nursing, 1944; R.N., B.S., Teachers College, Columbia University, 1952; M.A., Teachers College, Columbia University, 1953.

FLORENCE M. GIPE, Professor of Nursing and Dean.

Diploma in Nursing, York Hospital, 1919; R.N., B.S., Catholic University of America, 1937; M.S., University of Pennsylvania, 1940; Ed.D., University of Maryland, 1952.

MARY E. GROTEFEND, Assistant Professor of Public Health Nursing.

Diploma in Nursing, Bethany Hospital School of Nursing, 1931; R.N., A.B., Baker University, 1934; M.S., Catholic University of America, 1944; C.P.H.N., Catholic University of America, 1952.

MARGARET LOTHIAN HAYES, Associate Professor of Nursing.

Diploma in Nursing, Sherman Hospital School of Nursing, 1936; R.N., B.S., Vanderbilt University, 1943; M.S., Catholic University of America, 1947.

ELSIE Ho, Assistant Professor of Mental Health.

Diploma in Nursing, Queen's Hospital School of Nursing, 1943; C.P.H.N., University of Hawaii, 1944; R.N., B.S., Western Reserve University, 1947; M.A., Columbia University, 1952.

CAROL HOSFIELD, Instructor of Medical and Surgical Nursing.

Diploma in Nursing, University of Maryland, 1950; R.N., B.S., University of Maryland, 1952; M.S., University of Pennsylvania, 1956.

MARGUERITE E. HYDORN, Assistant Professor of Maternal and Child Health.

Diploma in Nursing, Saginaw General Hospital, 1941; R.N., B.S., Wayne University, 1951; M.Ed., University of Maryland, 1954.

*MARGARET PAULONIS, Instructor of Nursing.

Diploma in Nursing, Maryland General Hospital, School of Nursing, 1946; R.N., B.S., Catholic University of America, 1951.

FRANCES T. REED, Assistant Professor of Pediatric Nursing.

Diploma in Nursing, Griffin Hospital School of Nursing, 1935; R.N., B.S., Catholic University of America, 1940; M.Ed., University of Maryland, 1952.

GLADYS SELLEW, Professor of Nursing of Children.

Diploma in Nursing, Cincinnati General Hospital School of Nursing, 1920; R.N., A.B., University of Cincinnati, 1920; B.S., University of Cincinnati, 1921; M.A., University of Cincinnati, 1921; Ph.D., Catholic University of America, 1938.

*Completing Master's degree in 1956.

ELEANOR L. SLACUM, Assistant Professor of Medical and Surgical Nursing.

Diploma in Nursing, Cambridge Maryland Hospital School of Nursing, 1928; R.N., B.S., University of Maryland, 1951; Graduate Study, American University, 1951-52.

MARY F. SULTZER, Instructor of Childhood Education.

B.S., Johns Hopkins University, 1929; M.A., Johns Hopkins University, 1934.

*FRANCES WICKHAM, Assistant Professor of Public Health Nursing.

Diploma in Nursing, Johns Hopkins School of Nursing, 1941; R.N., B.S., Catholic University, 1947.

KATHERYN S. WOHLSEN, Associate Professor of Public Health Nursing.

B.A., Flora Stone Mather College of Western Reserve University, 1928; M.N., Frances Payne Bolton School of Nursing of Western Reserve University, 1941; R.N., M.A., Teachers College, Columbia University, 1947.

CECELIA M. ZITKUS, Assistant Professor, Rehabilitative Nursing.

A.B., Ursuline College, 1940; Diploma in Nursing, St. Alex's School of Nursing, 1943; M.A., University of Maryland, 1954; R.N.; Post Master study at Catholic University of America, 1955-56.

PART-TIME INSTRUCTIONAL STAFF

J. EDMUND BRADLEY, M.D., Professor of Pediatrics

PELA BRAUCHER, M.S., Associate Professor of Foods and Nutrition

ROBERT W. BUXTON, M.D., Professor of Surgery

BRICE DORSEY, D.D.S., Professor of Oral Surgery

FRANK H. J. FIGGE, M.D., Professor of Anatomy

JACOB E. FINESINGER, M.D., Professor of Psychiatry

ARTHUR L. HASKINS, JR., M.D., Professor of Obstetrics and Gynecology

JOHN C. KRANTZ, JR., Ph.D., D.Sc., Professor of Pharmacology

EDNA McNAUGHTON, M.A., Professor of Childhood Education

MAURICE C. PINCOFFS, B.S., M.D., Professor of Preventive and Rehabilitative Medicine

EMIL C. SCHMIDT, Ph.D., L.L.D., Professor of Biological Chemistry

GRACE E. SHAW, B.S., Reg. P.T. Head, Department of Physiotherapy

JANET WESSEL, Ph.D., Assistant Professor of Physical Education.

HUNTINGTON WILLIAMS, M.D., Dr. P.H., Professor of Hygiene and Public Health

CHARLES L. WISSEMAN, JR., M.S., M.D., Professor of Microbiology

THEODORE E. WOODWARD, M.D., Professor of Medicine

INSTRUCTORS IN ASSOCIATED INSTITUTIONS AND AGENCIES

RICHARD BOLIN, R.N., B.S., Director of Nursing, Springfield State Hospital

FLORENCE BURNETT, R.N., M.A., Mental Health Consultant, Division of Public Health Nursing, Maryland State Health Department

HELEN FISK, R.N., M.P.H., Chief, Public Health Nursing, Maryland State Health Department

JOSEPH H. LAVOIE, R.N., M.A., Director of Nursing, Crownsville State Hospital

MARGARET NEWCOMB, R.N., B.S., Director of Nursing, Sheppard-Pratt Psychiatric Hospital

MATTHEW TAYBACK, Sc.D., Director Statistical Section, Baltimore City Health Department

WILLIAM H. F. WARTIEN, M.D., M.P.H., Director of Bureau of Public Health, Baltimore County Public Health Department

*Completing Master's degree in 1956.

FACULTY AND SPECIAL COMMITTEES, SCHOOL OF NURSING**Executive Committee**

Miss Gipe, Chairman, Mmes. Conley, Hydorn, Troy, Hayes, Willers.

Educational Standards, Policies and Coordination

Miss Carl, Chairman, Mmes. Conley, Fernandez, Hayes, Reed and Wohlsen.

Curriculum and Evaluation

Miss Conley, Chairman, Mmes. Hayes, Carl, Ho, Grotefend, Dr. Rollinson.

Publications and Catalogues

Miss Carl, Chairman, Mmes. Conley, Paulonis, Slacum, Anderson

Scholarships and Student Aid

Miss Conley, Chairman, Mmes. Hayes, Dyson, Baer, Student Nurse Representative, President, Nurses Alumna Association.

Libraries

Mrs. I. Robinson, Chairman, Mmes. Paulonis, Reed, Hydorn, Troy, Miss Fernandez, Student Government Association President. Ex-officio Members: Mmes. Gipe, Baer, Mrs. Hurst.

Student Welfare

Miss Hosfield, Chairman, Mmes. Hayes, Gocke, President Student Government Association.

Admissions and Promotion

Miss Hayes, Chairman, Mmes. Carl, Wohlsen, Reed, Drew.

Curriculum Committee—Graduate Education

Mmes. Carl, Conley, Fernandez, Gipe, Hydorn, Sellow.

**ADMINISTRATIVE STAFF—UNIVERSITY OF MARYLAND
HOSPITAL**

CLIFFORD G. BLITCH, M.D.....Director
SAM O. GILMER, B.S.....Assistant Director
MICHAEL J. SPODNIK, JR., B.S., M.S.....Assistant Director

**DEPARTMENT OF NURSING SERVICE
UNIVERSITY OF MARYLAND HOSPITAL**

AURELIA C. WILLERS, R.N., B.A., Director, Nursing Service
EVA F. DARLEY, R.N., B.S., M.Ed., Associate Director, Nursing Service
HELEN KING, R.N., B.S., Assistant Director, Nursing Service, Evening
LENORA MCKENZIE, R.N., Assistant Director, Nursing Service, Night
LORRAINE NEEL, R.N., Assistant Director, Nursing Service

SCHOOL OF NURSING

FLORENCE M. GIPE, R.N., Ed.D., Dean

The School of Nursing of the University of Maryland offers both general and fundamental education for students who wish to prepare for professional work in the broad field of nursing activities.

The objective of the curriculum is to aid the student to develop habits in critical and constructive thinking, as well as skills in nursing, which will continue to influence her growth and learning, and will enable her to assume the responsibilities of a professional nurse and of a useful member of her community.

The school endeavors to assist the student to become skillful in meeting the nursing needs of the individual and community groups for care during illness and for the conservation of health; and to gain personal and professional satisfaction as a contributing member of society.

History

The University of Maryland School of Nursing, the second school of nursing to be founded in Maryland was organized in December, 1889 by Louisa Parsons, a student of Florence Nightingale, and a graduate of St. Thomas Hospital School in London, England. Because of her keen interest in Miss Parsons' new American School, Miss Nightingale designed for the students in this new school, the Nightingale cap which is still proudly worn by graduates of the University of Maryland School of Nursing.

In 1902 the original two year curriculum was extended to three years. For more than a generation, graduates of this growing school have served in the community, founded nursing schools in Maryland and other states, and participated in professional organizations on a national and local level. In World Wars I and II, graduates of the school served on foreign soil with the Medical Units of the University of Maryland. Again during the Korean War, University of Maryland nurses answered the call to service by ministering to the sick and wounded in the orient. In 1920 the School of Nursing became a separate unit of the University, although it continued to be administered as a hospital school.

In 1926 the University of Maryland instituted a five year combined academic and nursing program. The establishment of this type of nursing program was in keeping with the trends in nursing education at that time. After completing two years of academic work in the College of Arts and Sciences and three years in the School of Nursing, the student received the Bachelor of Science degree and the diploma of Graduate in Nursing.

Recent trends in nursing created in Maryland, as in other states, a demand for a four year program leading to the degree of Bachelor of Science in Nursing. The School of Nursing faculty advised the President and the Board of Regents of the University to inaugurate such a program to replace the existing five year plan. On May 26, 1952, the four year program was publicly announced by the President of the University. A Dean was appointed and members of the faculty were accorded academic status. Through this action the Nursing School became a degree-granting institution. The School of Nursing, being a part of the State University which is also a Land Grant College, receives funds for operation from the University.

Membership and Accreditation

The University of Maryland, which incorporates the School of Nursing with all of the other schools of the University, is a member of the Association of American Colleges and is accredited by the Middle States Association of Colleges and Secondary Schools.

The School of Nursing is an agency member of the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing.

Facilities For Instruction

Facilities for instruction used by the School of Nursing include: the various colleges of the University of Maryland at College Park; the professional schools of Dentistry, Law, Medicine and Pharmacy of the University; and the College of Special and Continuation Studies on the Baltimore Campus.

In addition to these, the School of Nursing utilizes the following facilities:

University of Maryland Hospital: General Hospital of 711 beds, providing medical, surgical, pediatric and obstetric services. The clinic facilities of the Out-Patient Department in which 500 patients are treated daily, are also utilized.

The University Hospital is approved by the Joint Commission on Accreditation of Hospitals, the American Medical Association for interns and residents, the American Hospital Association, and the Maryland, Delaware and District of Columbia Hospital Association.

Psychiatric Institute: Recently constructed addition to the University Hospital with facilities for 105 patients, the psychiatric out-patient department and Child Guidance Clinic.

University of Maryland Nursery-Kindergarten School: Unit operated by the College of Education to provide training and experience for students interested in nursery—kindergarten school education.

Baltimore City Health Department: Agency providing health teaching and nursing care of patients in their homes and in clinics in the area of municipal Baltimore.

Maryland State Health Department: Agency providing health teaching and nursing care of patients in their homes and in community clinics in selected districts throughout the state of Maryland.

LIBRARY FACILITIES

Libraries are located at both the College Park and Baltimore divisions of the University. In addition to the general library, volumes on the College Park Campus are shelved in the Departments of Chemistry, Entomology and Mathematics; the Graduate School and other units. Plans are in progress for the construction of a new \$2,000,000 library building.

The general library is a depository for publications of the United States Government, and numbers some 75,000 documents in its collection.

The University Library System is able to supplement its reference service by borrowing materials from other libraries through Inter-Library Loan or Bibliofilm Service, or by arranging for personal work in the Library of Congress, the United States Department of Agriculture Library, and other agencies in Washington.

A bookmobile service under the supervision of the Director of Libraries provides books and publications for off-campus students throughout the State of Maryland.

The School of Nursing Library is an integral part of the University of Maryland Library System and is under the supervision of the Director of Libraries of the University. Collections of both scientific and recreational books are provided in the library which is conveniently located on the first floor of the Louisa Parsons Hall, the student dormitory.

The facilities of the Dental, Law, Medical and Pharmacy School Libraries are available to the students of the School of Nursing. Additional facilities are provided at the main branch of the Enoch Pratt Library, which comprises the public library system of the City of Baltimore; the Peabody Library which comprises a large collection of non-circulating books; and the Maryland Historical Society Library.

ADMISSION REQUIREMENTS

Freshmen Students

Graduates of Accredited Secondary Schools:

Graduates of accredited secondary schools will be admitted by certificate upon the recommendation of the secondary school principal. The admission requirements of the School of Nursing are much the same as requirements for admission to other undergraduate schools of the University. In selecting students more emphasis will be placed upon indications of probable success in nursing rather than upon a fixed pattern of subject matter. The following distribution of subject matter is desirable:

English.....	4 units are required for all divisions of the University
Mathematics.....	2 units. One each of algebra and plane geometry is desirable.
History.....	1 unit. Two units are desirable.
Foreign Language.....	1 unit. Two units are desirable.
Science:	
Biology	1 unit
Chemistry	1 unit
Physics	1 unit

High School Equivalence Examinations:

For those persons who have taken the high school equivalence examinations

admission requirements may be obtained from the Director of Admissions; University of Maryland, College Park, Maryland.

The school is open to those American citizens and foreign students who qualify for admission. Evidence of personal fitness for nursing in regard to health, personality and moral character must be submitted.

Transfer Students

Any student in good standing as to scholarship and conduct is eligible to transfer from an accredited college or university. Advanced standing is assigned to transfer students from such accredited institutions under the following conditions:

1. Students who have had at least two years of college in other approved schools may be admitted to the junior year providing they have completed the courses prerequisite to the studies in the clinical area such as biology, chemistry, bacteriology, human anatomy and physiology.
2. Students admitted to the junior year must have completed the equivalent of the American Civilization Program of the University of Maryland. (See page 34.)
3. All undergraduate women students are required to enroll in and complete four prescribed courses in physical education for a total of four semester hours of credit. These courses should be completed before beginning the junior year.
4. The University of Maryland reserves the right at any time to revoke advanced standing if the transfer student's progress is unsatisfactory.

Application Procedure

Applicants from Secondary Schools: Procure an application form from the Director of Admissions, University of Maryland; College Park, Maryland. Fill in personal data requested. Ask your principal or headmaster to enter your secondary school record on the application form and to mail the form directly to the Director of Admissions.

To avoid delay, it is suggested that applications be filed not later than July first, for the fall semester, and January first, for the spring semester. Applications are encouraged from students completing their last semester of secondary school. If the secondary school record up to the last semester is acceptable, supplementary records may be sent upon graduation.

Applicants from other Colleges and Universities: Procure an application form from the Director of Admissions. Fill in personal data requested and ask the secondary school principal or headmaster to enter secondary school record and to send the form to the Director of Admissions; University of Maryland, College Park, Maryland.

Request the Registrar of the College or University attended to send a transcript of college work to the Director of Admissions.

Time of Admission: New students should plan to enter the University at the beginning of the fall semester if possible. Students, however, will be admitted at the beginning of either semester in the College Park Division.

Registration

Registration for classes is held at the beginning of each semester.*

In order to attend classes and to receive credit for courses, students are required to register at the beginning of each semester.

FEES AND EXPENSES

All fees are due and payable at the time of registration. Students should come prepared to pay the full amount of the charges. Checks and money orders should be made payable to the University of Maryland for the exact amount of charges. No student will be admitted to classes until such payment has been made. In cases where a student has been awarded a scholarship, the amount of such scholarship or grant will be deducted from the bill.

The University reserves the right to make such changes in fees and other expenses as may be found necessary, although every effort will be made to keep the costs to the student as low as possible.

No degree will be conferred, nor any diploma, certificate, or transcript of a record issued to a student who has not made satisfactory settlement of his account.

In the event of dismissal or resignation, the general rules of the University in regard to refund of fees are applicable.

The charges are approximate and may fluctuate because of changing economic conditions. Student uniforms are obtained during the second year in the School of Nursing. Expenses such as meals, carfare, and incidentals for field trips are borne by the student.

EXPLANATION OF FEES

The Fixed Charges Fee is not a charge for tuition. It is a charge to help defray the cost of operating the University's physical plant and other various services which ordinarily would not be included as a cost of teaching personnel and teaching supplies. Included in these costs would be janitorial services, cost of heat, electricity, water, etc., administrative and clerical cost, maintenance of buildings and grounds, maintenance of libraries, cost of University Publications, Alumni Office, the University Business and Financial Offices, the Registrar's Office, the Admissions Office, and any other such services as are supplemental and necessary to teaching and research.

The Athletic Fee is charged for the support of the Department of Inter-Collegiate Athletics. All students are eligible and encouraged to participate in all the activities of this department and to attend all contests in which they do not participate.

*For registration in College Park Division, contact Miss Margaret L. Hayes, Assistant to the Dean, School of Nursing, ext. 352, University of Maryland, College Park, Maryland. For registration in the Baltimore division, contact the office of the Dean, 620 West Lombard Street, Baltimore 1, Maryland.

The Special Fee is used to pay interest on and amortize the cost of construction of the Student Union Building and the combination building used as an Auditorium for Physical Education and Indoor Athletics.

The Student Activities Fee is a mandatory fee included at the request of the Student Government Association. It covers subscription to the Diamond-back, student newspaper; the Old Line, literary magazine; the Terrapin, yearbook; and class dues, and includes financial support for the musical and dramatic clubs.

The Infirmary Fee does not include expensive drugs or special diagnostic procedures. Expensive drugs will be charged at cost and special diagnostic procedures, such as x-ray, electrocardiogram, basal metabolism study, etc., will be charged at the lowest cost prevailing in the vicinity.

The Health Fee is payable on the Baltimore campus. It helps to defray the costs of maintenance of the health service. This service includes routine examinations and medical care. Special treatments, medications, and examinations are not included in this service.

Students entering the University for the second semester will pay the following additional fees: Athletic, \$7.50; Student Activities, \$8.00; Special, \$20.00; Infirmary, \$2.50; Advisory and Testing Fee, \$1.00.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in this State for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents of this State by maintaining such residence for at least one full year. However, the right of the minor student to change from a non-resident status to resident status must be established by him prior to the registration period set for any semester.

Adult students are considered to be residents if at the time of their registration they have been domiciled in this State for at least one year provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word domicile as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be maintained.

FEES AND EXPENSES

College Park Division

Fees for Undergraduate Students Maryland Residents	First Semester	Second Semester	Total Per Year
Fixed Charges	\$ 82.00	\$ 83.00	\$165.00
Athletic Fee	15.00	.....	15.00
Student Activities Fee	10.00	.....	10.00
Special Fee	40.00	.....	40.00
Infirmary Fee	5.00	.....	5.00
Advisory and Testing Fee.....	5.00	.....	5.00
	\$157.00	\$ 83.00	\$240.00

Residents of the District of Columbia, Other States and Countries	First Semester	Second Semester	Total
Tuition Fee for Non-Resident Students	\$125.00	\$125.00	\$250.00
Total for Non-Resident Students.....	\$282.00	\$208.00	\$490.00

Baltimore Division

Fees for Undergraduate Students	First Semester	Second Semester	Total
Fixed Charges	\$ 95.00	\$ 95.00	\$190.00
*Health Fee	20.00	.....	20.00
Post Office Fee	2.00	.....	2.00
Student Activity Fee	10.00	.....	10.00
Total, all students.....	\$127.00	\$ 95.00	\$222.00

SPECIAL FEES

Matriculation Fee—payable at time of first registration in the University'	\$ 10.00
Application Fee—for students transferring from other schools to the University of Maryland in Junior Year.....	7.50
Diploma Fee for Bachelors Degree.....	10.00

Miscellaneous Fees and Charges

Fee for part-time students per credit hour.....	\$ 10.00
The term "part-time" is interpreted to mean undergraduate students taking 6 semester credit hours or less. Students carrying more than 6 semester hours pay the regular fees.	

Late Registration Fee	5.00
(All students are expected to complete their registration, including	

*It is recommended that students carry Blue Cross Hospital Insurance.

the filing of class cards and payment of bills, on the regular registration days). Those who do not complete their registration during the designated time will be charged a fee of \$5.00.

Fee for Change in Registration.....	3.00
Fee for failure to report for medical examination appointment.....	2.00
Transcript of Record Fee (Academic) (One transcript furnished without charge)	1.00
Makeup Examination Fee—(for students who are absent during any class period when tests or examinations are given).....	1.00

Textbooks and Supplies

Costs of textbooks and classroom supplies vary with the course, but will average per semester.....	\$ 35.00
Baltimore Division	20.00
Uniforms (approximate cost to student).....	85.00

Field Work

Students will be responsible for lunch and car fare when they are assigned to outlying districts during Public Health Field Work.

Laboratory Fees

Biochemistry Laboratory Fee	\$ 5.00
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SUMMARY OF TOTAL COSTS

COLLEGE PARK DIVISION		FRESHMAN AND SOPHOMORE YEARS	
EXPENSES	FRESHMAN YEAR	SOPHOMORE YEAR	TOTAL
Fees (Residents of Maryland)*	\$ 240.00	\$ 240.00	\$ 480.00
Matriculation fee	10.00	.....	10.00
Laboratory fees (approximate)	20.00	20.00	40.00
Textbooks (Approximate)	60.00	60.00	120.00
Board and Lodging (Residents of Md.)†	530.00	530.00	1,060.00
Total	\$ 860.00	\$ 850.00	\$1,710.00

*Non-residents pay an additional \$250.00 per year.

†Non-residents pay an additional \$150.00 per year.

BALTIMORE DIVISION		SUMMER SESSION, JUNIOR AND SENIOR YEARS		
EXPENSES	SUMMER SESSION	JUNIOR YEAR	SENIOR YEAR	TOTAL
Fees	.....	\$ 222.00	\$ 222.00	\$ 444.00
Uniforms (approximate)	.....	85.00	.....	85.00
Textbooks (approximate)	.....	20.00	.....	20.00
Laboratory Fee	.....	5.00	.....	5.00
Diploma Fee	.....	.....	10.00	10.00
Dormitory Fee	\$20. - 30.00	.....	.....	\$20. - 30.00
Total	\$20. - \$30.00	\$ 332.00	\$232.00	\$584.00-\$594.00

Board and Lodging—Baltimore Division

Summer session (6 weeks)

Double Room	\$ 20.00
Single Room	30.00

Board is provided as a working scholarship in exchange for nursing service.

Junior and Seniors Years

Board and Lodging are provided as a working scholarship in exchange for nursing service.

SCHOLASTIC REGULATIONS

Grading

The scholastic standing of a student is recorded in terms of the following symbols: A, B, C, D, passing F, failure, I, Incomplete. Mark A denotes superior scholarship; mark B, good scholarship; mark C, fair scholarship; and mark D, passing scholarship.

In computing scholastic averages, numeral values are assigned as follows: A-4, B-3, C-2, D-1, F-0.

A scholastic average of C is required for graduation and for junior standing. The average will be computed on the basis of the courses required by each student's curriculum. The average of transfer students and those seeking combined degrees will be computed only on the courses taken in residence in the University of Maryland and in satisfaction of the non-curriculum requirements of the college granting the degree. An over-all

average will also be computed to include all courses taken in the University as a basis for the award of honors and such other use as may be deemed appropriate.

A student doing unsatisfactory work will be counseled in an appropriate manner by the Dean.

The University reserves the right to request the withdrawal of a student who does not or cannot maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his health, or to the health of others, or whose conduct is not satisfactory to the authorities of the University.

Attendance

According to University regulations, excessive absence from any class is penalized by failure in that course. Students may be absent from class only upon approval of the instructor for the course.

Reports

Written reports of grades are sent by the Registrar to parents or guardians of minor students.

Vacation, Absences

Four weeks vacation is granted each year during the clinical period of instruction. Time lost through illness or other causes during the clinical period in excess of three weeks is required to be made up.

Junior Requirements

A student must acquire a minimum of 64 credits exclusive of the requirements in physical education and introductory nursing subjects with an average grade of at least C in the freshman and sophomore years before transferring to the clinical area.

Requirements for Graduation

For graduation each student must acquire a minimum of 128 semester hour credits in academic subjects other than physical activities. The physical activities requirement is four semester hours in addition to the above requirements.

Conferring of Degrees

The baccalaureate degree will be awarded only to the student who has had one year or more of resident work in the University of Maryland. The last thirty semester credits of any curriculum leading to a baccalaureate degree must be taken in residence at the University.

An average grade of C (2.0) is required for graduation. The C average will be computed on the basis of the courses required by each student's curriculum. The average grade of transfer students and of those seeking combined degrees will be computed only on the courses taken in residence in the University of

Maryland in satisfaction of the non-professional curriculum requirement of the college granting the degree. An overall average will also be computed to include all courses taken in the University as basis for the award of honors and such other uses as may be deemed appropriate.

Each candidate for a degree must file a formal application for the degree in the Office of the Registrar eight weeks prior to the date he expects to graduate. Candidates for degrees must attend commencement exercises at which degrees are conferred and diplomas awarded. Degrees are conferred in absentia only in exceptional cases.

Eligibility for State Registration

Upon the successful completion of the program, graduates will be eligible for admission to the examination for registration to practice nursing in Maryland, which is given by the Maryland State Board of Examiners of Nurses.

Transcript of Records

Students and alumni may secure transcript of their scholastic records from the Office of the Registrar. No charge is made for the first copy; for each additional copy there is a charge of \$2.00. Checks should be made payable to the University of Maryland. Transcripts of records should be requested at least two weeks in advance of the date when the records are actually needed. Transcripts of students' records will be furnished only to those students or alumni whose financial obligations to the University have been met.

LIVING ARRANGEMENTS

Dormitories-College Park

All freshmen except those who live at home are required to room in the dormitories, or in living quarters approved by the Dean of Women.

All new students desiring to room in the dormitories should request a room application card on their application for admission. The Director of Admissions will refer these to the offices of the Dean of Women. Application cards will be sent to applicants and should be returned promptly. A fee of \$15.00 will be requested which will be deducted from the first semester charges when the student registers. A room is not assured until notice is received from the Dean concerned. Room reservation fees will not be refunded if the request is received later than August 15 for the first semester.

Applications for rooms are acted upon only when a student has been fully admitted academically to the University.

It is understood that all housing and board arrangements which are made for the fall semester are binding for the spring semester.

Equipment

Students assigned to dormitories should provide themselves with single blankets, at least four sheets, a pillow, pillow cases, towels, a laundry bag, a

waste paper basket, a desk blotter, and bureau scarves. The individual student must assume responsibility for all dormitory property assigned to her.

Each student will be furnished a key for her room for which a deposit of \$1.00 is made. This deposit will be returned in exchange for the key at the end of the year.

Baggage

Personal baggage sent via American Express and marked with a dormitory address will be delivered when the student notifies the College Park express office of her arrival.

Laundry

Students may use facilities provided in each dormitory although there are no facilities for the laundering of bed linen.

Meals

All students who live in permanent University dormitories must take meals at the University Dining Hall.

Residence Hall—Baltimore

Louisa Parsons Hall, the student dormitory of the School of Nursing in Baltimore, offers comfortable living accommodations for the nursing students. It is under the general supervision of the Dean of Women. Bed linens, blankets, and curtains are provided as part of the general furnishings of the room. Students are requested to bring their own bedspread, bureau scarf and two small rugs.

All living accommodations other than those provided in the student dormitory must be approved by the Dean of Women.

STUDENT HEALTH AND WELFARE

Student Health—College Park Campus

The University recognizes its responsibility for safeguarding the health of students and takes every possible precaution toward this end. All new undergraduate students will be given a thorough physical examination at the time of their entrance to the University. A well equipped infirmary is available for the care of the sick or injured student. A small fee is charged but does not cover the cost of expensive drugs and special diagnostic procedures.

Student Health—Baltimore Campus

The School of Nursing, in cooperation with the University of Maryland Hospital, maintains a health service under the general direction of an appointed physician and nurse to provide medical care for the students.

All junior students receive a physical examination including chest x-ray and blood studies as a part of their matriculation in this area. This examination is repeated annually or more often if indicated.

Hospital care is provided for the student for a limited time. Reasonable rates will be charged for longer periods of hospitalization. Special treatments and medications, not considered routine, will be paid by the student. Dental work is not provided.

SCHOLARSHIPS AND STUDENT AID

Under an act of the Legislature, the University may award such scholarships, and accept gifts for scholarships, as it may deem wise, and consistent with prudent financial operations.

All scholarships for the undergraduate departments of the University at College Park are awarded by the Faculty Committee on Scholarships. All scholarship applicants are subject to the approval of the Director of Admissions insofar as qualifications for admission to the University are concerned. All holders of scholarships are subject to the educational standards of the University, and to department regulations and standards.

Scholarships are awarded on the basis of apparent qualifications for leadership. In making scholarship awards, consideration is given to participation in the various student activities, and to other outstanding attributes that indicate future possibilities as a leader, as well as to scholastic achievement, character, and all other factors which distinguish the most worthwhile students. It is the intention that scholarships shall be provided for young men and women who have characteristics which make them outstanding among their fellows, who might not otherwise be able to provide for themselves an opportunity for advanced education.

The General Information Catalogue, available from the Director of Publications, Room 28, Symons Hall, University of Maryland, College Park, Maryland, contains a complete list of all scholarships available at the University of Maryland.

School of Nursing Loan Fund

This loan fund is made available to junior and senior students in the School of Nursing. Loans are made to students to help defray costs of the educational program and are made on the basis of need, character and scholastic attainment. Applications for loans may be obtained from the Office of the Dean of the School of Nursing.

W. K. Kellogg Foundation Loan

This loan fund was first established at the University of Maryland School of Nursing in 1942 with money granted by the W. K. Kellogg Foundation. The interest paid on the loans, together with the principle of the loan, as it is repaid, will be used to found a rotating loan fund. Loans will be made to junior and senior students on the basis of need, character, and scholastic attainment for study in the clinical area. Applications for W. K. Kellogg Loans may be obtained from the Office of the Dean of the School of Nursing.

RELIGIOUS INFLUENCES

The University recognizes its responsibility for the moral and spiritual welfare of students. Pastors representing the major religious denominations assume responsibility for work with students of their respective faiths. An interdenominational chapel is on the College Park campus. Church attendance is encouraged.

There are churches of the various denominations near the Baltimore campus of the School of Nursing. Pastors of the different religious faiths are available to the students for guidance.

Worship services are conducted by and for the students each Sunday morning.

ATHLETICS AND RECREATION

The University recognizes the importance of the physical development of all students. In addition to the required physical activities for freshmen and sophomores in the college program, a comprehensive inter-collegiate and intramural athletic program is sponsored by the University.

On the Baltimore campus facilities are made available to the students for basketball, skating, bowling, swimming and other physical and recreational activities.

EXTRA-CURRICULAR STUDENT ACTIVITIES

Many student clubs and societies with literary, art, cultural, scientific, social and other special objectives are maintained in the University. A number of social and honorary fraternities and sororities are established and recognized at the University. A complete roster of these organizations may be found in the general information catalogue available from the Director of Publications, Symons Hall, Room 28, University of Maryland, College Park, Maryland.

All organized student activities are under the supervision of the Committee on Student Life at College Park and Baltimore.

UNIVERSITY COUNSELING CENTER

The services in the Deans office are closely coordinated with the activities of the University Counseling Bureau, maintained by the Department of Psychology at College Park. This Bureau has a well trained technical staff, and is equipped with an extensive stock of standardized tests of aptitude, ability, and interest. Assistance is available in diagnosing reading and study difficulties.

BASIC PROFESSIONAL NURSING PROGRAM

The Basic Professional Nursing Program leading to the degree of Bachelor of Science in Nursing is designed to prepare carefully selected women and men for professional nursing. This proposes that the student will live in an educational environment which will contribute to her growth and development as a person, a nurse and as a citizen. Upon completion of the program, which is forty-eight months in length, the graduate should be able to assume the responsibilities of a professional staff nurse in a hospital, or in a public health or another community health agency.

The student spends the first two years of the program in the College Park division of the University. The freshman year is devoted to studies in general education which provide a foundation for the study of nursing. Courses in physical, biological and social sciences are given. In addition, appreciation courses in nursing are taught by a faculty member who resides on the College Park campus and also serves as counselor to the nursing students.

At the end of the first academic year the student receives an orientation to nursing at the University Hospital and other community health agencies in Baltimore. A basic course in the principles and practices of nursing is given with planned clinical experience in the hospital and out-patient department. At the completion of this six week orientation period the student is on vacation until the beginning of the University academic year.

During the second year of the program, the student continues her studies in the biological and social sciences. Opportunity is offered to study the health needs of children during various developmental stages. Observational experience in the nursery school of the University of Maryland is provided. An introductory course in nursing is offered to provide the student with background information regarding the effect of illness upon the individual, the family, the community, and the world.

Following the second academic year the student transfers in July to the clinical division of the School of Nursing in Baltimore. The next two years are devoted to the study of nursing in various clinical areas such as medicine, surgery, pediatrics, obstetrics, psychiatry, and public health. Learning experiences are provided to assist the student to develop sympathetic understanding of human nature and skills in communication which will enable her to work effectively with the patient, his family, and with her co-workers in the various health agencies. Clinical experiences and instruction are closely correlated so that the student will gain knowledge, skills, and attitudes essential for effective functioning of the professional nurse in preventive and curative health services.

CURRICULUM

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
English 1, 2—Composition and American Literature.....	3	3
Sociology 1—Sociology of American Life.....	3	....
G. & P. 1—American Government.....	....	3
Zool. 1, 2—Fundamentals of Zoology.....	4	4
Chem. 11, 13—General Chemistry.....	3	3
Speech 18, 19—Intro. Speech.....	1	1
Nurs. 3—History and Trends in Nursing.....	2	....
Nurs. 8—Nursing I.....		2
Physical Activities	1	1
Total.....	17	17

Summer Session

Nurs. 7—Nursing II	2	
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Sophomore Year

Eng. 3, 4, or 5, 6—Composition and World or English Literature	3	3
History 5, 6—History or American Civilization.....	3	3
Psych. 1—Intro. to Psychology.....	3	....
Bact. 1—General Bacteriology .....	....	4
Zool. 14, 15—Human Anatomy and Physiology.....	4	4
Speech 10—Group Discussion	2	....
Nutrition 110—Nutrition .....	....	3
Nurs. 9—Nursing in Child Health.....	2	....
Physical Activities	1	1
Total.....	18	18

Summer Session

Bio-Chem. 1—Bio Chemistry	4	
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Junior Year

Nurs. 102—Medical and Surgical Nursing.....	10	
Nurs. 105—Maternal and Child Health.....		10
Ed. 90—Development and Learning	3	....
Nurs. 103—Pharmacology	3	....
P.E. 160—Scientific Aspects of Movement.....	....	3
Nurs. 108—Applied Psychology	2	....
Soc. 64—Courtship and Marriage.....	....	3
Total.....	18	16

<i>Senior Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Nurs. 152—Psychiatric Nursing	4	....
Nurs. 153—Public Health	2	....
Nurs. 154—Principles of Management of a Nursing Unit.....	....	2
Nurs. 155—Survey of Professional Nursing.....	2	....
Nurs. 156—Public Health Nurs. I.....	....	2
Nurs. 157—Public Health Nurs. II.....	....	4
Nurs. 158—Bio-Statistics	3	....
Hea. 120—Teaching Health .....	....	3
Total.....	11	11

DISTRIBUTION OF EXPERIENCE IN CALENDAR MONTH

First Year

General Education (College Park Division).....	9
Clinical Nursing (Baltimore Division) Introduction to Nursing.....	1½
Total.....	10½

Second Year

General Education (College Park Division)	9
Clinical Nursing—Introductory Nursing	2
Total.....	11

Third Year

Clinical Nursing (Baltimore Division)	
Maternal and Child Health.....	6
Medical and Surgical Nursing.....	6
Total.....	12

Fourth Year

Clinical Nursing	
Psychiatric Nursing	3
Public Health Nursing	3
Medical and Surgical Nursing.....	3
Night Assignment	1
Total.....	10
Total (in 4 years).....	43½
Vacation (in 4 years).....	4½
Total (all experiences including vacation).....	48

UNIVERSITY OF MARYLAND
SCHOOL OF NURSING

Program for Graduate Nurses

The specific objectives of this program are to bring up to full collegiate level the basic nursing preparation of graduates of three year diploma schools, and to supply the non-professional courses considered desirable as a basis for further cultural and professional education.

Graduate nurses who have completed a three year program in an approved school of nursing, and who have successfully passed the Maryland State Board Examination for Registration of Nurses, or the equivalent and have qualified as registered nurses and meet the admission requirements of the University of Maryland may pursue studies in the School of Nursing leading to the degree of Bachelor of Science in Nursing.

Advance Standing Credit

Advance standing involving a maximum of 45 credits is determined by the applicant's Nursing School record and the results of the Graduate Nurse Qualifying Examination of the National League for Nursing.

REQUIREMENTS

General Requirements

Eng. 1—Composition and American Literature	(3)
Eng. 2—Composition and American Literature	(3)
Eng. 3—Composition and World Literature	(3)
Eng. 4—Composition and World Literature	(3)
or	
Eng. 5—Composition and English Literature	(3)
Eng. 6—Composition and English Literature	(3)
G.&P. 1—American Government	(3)
Soc. 1—Sociology of American Life	(3)
Hist. 5—History of American Civilization	(3)
Hist. 6—History of American Civilization	(3)

Science Requirements

Bact. 1—General Bacteriology	(3 or 4)
Bact. 101—Pathogenic Bacteriology	(3 or 4)
Chem. 1—General Chemistry	(4)
Chem. 3—General Chemistry	(4)
or	
Chem. 11—General Chemistry	(3)
Chem. 13—General Chemistry	(3)

THE SCHOOL OF NURSING

Nursing Requirements

Nurs. 9—Nursing in Child Health	(2)
Nurs. 108—Applied Psychology	(2)
Nurs. 156—Public Health Nursing I	(2)
Nurs. 157—Public Health Nursing II	(4)
Nurs. 153—Public Health	(2)
Nurs. 154—Principles of Management in a Nursing Unit	(2)
Nurs. 158—Biostatistics	(3)
Nurs. 199—Pro-Seminar	(2)
Nurs. 159—Clinical Practicum (Recom. of Advisor)	(2)

Additional Requirements

Hea. 120—Teaching Health	(3)
Psych. 1—Introduction to Psychology	(3)
Sp. 1—Public Speaking	(2)
Sp. 10—Group Discussion	(2)

or

Sp. 103—Speech Composition and Rhetoric	(3)
Ed. 90—Development and Learning	(3)
P.E. 160—Scientific Aspects of Movement	(3)
Nut. 114—Nutrition for Health Services	(3)
Soc. 64—Courtship and Marriage	(3)

Electives may be selected after consultation with the advisor in the areas of psychology, sociology, education, and nursing.

A total of 128 semester credits are necessary for the degree, the last 30 semester hours of which must be taken in the University of Maryland.

COURSE REQUIREMENTS OF THE UNIVERSITY

Freshmen and Sophomores, American Civilization Program

All students (unless specific exceptions are noted in printed curricula) are required to take twelve semester hours of English, three semester hours of Sociology (Soc. 1 - Sociology of American Life), three semester hours of government (G. & P. 1 - American Government) and six semester hours of history (H. 5, 6 - History of American Civilization.)

These several courses are planned as parts of a whole that is designed to acquaint students with the basic facts of American history, with the fundamental patterns of our social, economic, political and intellectual development, and with the riches of our cultural heritage.

Physical Education

All undergraduate women students classified academically as freshmen or

sophomores, who are registered for more than six semester hours of credit, are required to enroll in and successfully complete four prescribed courses in physical education for a total of four semester hours of credit. The successful completion of these courses is a requirement for graduation. These courses must be taken by all eligible students during the first two years of attendance at the University, whether or not they intend to graduate. Transfer students who do not have credit in these courses, or their equivalent, must complete them or take them until graduation, whichever occurs first.

COURSE DESCRIPTIONS

Bact. 1. General Bacteriology (4)—Second semester, Sophomore year. Two lecture and two laboratory periods a week.

The physiology, culture, and differentiation of bacteria. Fundamental principles of microbiology in relation to man and his environment. Laboratory fee \$10.00. Faber and Staff

Bio-Chemistry 1. (4)—Summer Session, Sophomore Year

Basic principles of biological chemistry with emphasis on their application to diagnostic tests and the chemical processes which occur during health and disease. Department of Chemistry—School of Medicine

Chem. 11, 13. General Chemistry (3, 3)—First and second semesters, Freshman year. Two lectures and one three hour laboratory period a week. Laboratory fee \$10.00 per semester. Drake and Staff

Chem. 1, 3. General Chemistry (4, 4)—First and second semesters. Two lectures, one quiz, and two two-hour laboratory periods per week.

Eng. 1, 2. Composition and American Literature (3, 3)—First and second semesters, Freshman year. Required of freshmen. Both courses offered each semester, but may not be taken concurrently. Prerequisite, three units of high school English.

Grammar, rhetoric, and the mechanics of writing, frequent themes. Readings in American Literature. Ball and Staff

Eng. 3, 4. Composition and World Literature (3, 3)—First and second semesters, Sophomore year. Prerequisite Eng. 1, 2. Eng. 3, 4 or Eng. 5, 6 or an acceptable combination of the two are required of sophomores. Credit will not be given for more than 6 hours of work in 3, 4 and 5, 6.

Practice in composition. An introduction to world literature, foreign classics being read in translation. Cooley and Staff.

Eng. 5, 6. Composition and English Literature (3, 3)—First and second semesters, Sophomore year. Prerequisite, Eng. 1, 2. Eng. 3, 4 or 5, 6 or an acceptable combination of the two are required of sophomores. Credit will not be given for more than 6 hours of work in 3, 4 and 5, 6.

Practice in composition. An introduction to major English writers.

Zeeveld and Staff.

Ed. B. 90. Development and Learning (3)—First Semester, Junior Year.

A study of the principles of learning and their application to practical learning situations. Carl

G. & P. 1. American Government (3)—Second semester, Freshman year.

This course is designed as the basic course in government for the American Civilization program, and it or its equivalent is a prerequisite to all other courses in the department.

It is a comprehensive study of governments in the U. S.—national, state, and local, and of their adjustments to changing social and economic conditions. Burdette and Staff.

H. 5, 6. History of American Civilization (3, 3)—First and second semesters, Sophomore year. Required for graduation of all students who entered the University after 1944-1945. Normally to be taken in the sophomore year.

Crossmon, and Staff.

Hea. 120. Teaching Health (3). Second semester, Senior Year. Prerequisite, Hea. 40, or equivalent.

The development of health instruction based on the needs of school-age children. The formulation of objectives, scope and sequence of instruction, the examination of teaching methods, source materials, community resources, and evaluation procedures.

Nur. 3.—History and Trends in Nursing (2)—First semester, Freshman Year.

This course is designed to acquaint the student with the development of nursing from the earliest times to the present. Emphasis is placed upon the nature and pattern of nursing as it progressed through the different periods, and as it was related to the education of women. Hayes.

Nur. 7. Nursing II (2)—Summer Session, Freshman Year.

A course designed to develop an understanding and appreciation of the concepts of professional nursing.

Planned experience in the clinical situation, affords the student the opportunity to participate in identifying patient's needs, planning for and carrying out a program of nursing care. Hayes.

Nur. 8. Nursing I (2)—Second semester, Sophomore year.

A course designed to acquaint the student with the factors to be considered in the health or sickness of the individual as they effect the family and community relationships. The role of the nurse in the modern concept of nursing in world health and social developments is interpreted. Hayes.

Nur. 9. Nursing in Child Health (2)—Second semester, Sophomore year.

This course is designed to help the student gain an understanding and appreciation of the health needs of the child in relation to his physical, mental, emotional, and social development. Reed and others.

Nur. 102. Medical and Surgical Nursing (10)—First or second semester, Junior Year.

Designed to help the student acquire a knowledge and understanding of the causes, symptoms, treatments, and general control of diseases, and an appreciation of the common factors involved in complete nursing care. The pharmacological and dietary aspects are fused throughout each area. Those procedures that are necessary to insure safe and skillful nursing care are studied, discussed, evaluated, and applied in relation to each condition.

Slacum and Assistants.

Nur. 103. Pharmacology (3)—First semester, Junior Year.

Designed to help the student gain an understanding and an appreciation of the principles of drug therapy. The chemical and physiological action of drugs is studied in the classroom, the laboratory, and on the hospital wards. Emphasis is given on the properties, the action, the therapeutic, and the toxic effects of drugs.

Musser and Assistants

Nurs. 105. Maternal and Child Health (10)—First or second semester, Junior Year.

A course designed to assist the student to acquire an understanding and appreciation of maternal and child health nursing which will enable her to develop skill in working with children and parents and others providing services to the family.

Hydorn, Reed, and Assistants.

Nurs. 108. Applied Psychology (2)—First semester, Junior Year.

This educational experience is designed to supplement and implement nurses' basic knowledge of psychology and sociology.. Through lectures, discussions, and observations focused on patient and nurse behavior, nurses can become more aware of the importance of, and can be helped to develop, positive nurse-patient relationship.

Ho.

Nurs. 152. Psychiatric Nursing (4)—First or second semester, Senior Year.

This course is designed to assist the student to gain a working knowledge of the dynamics of human behavior, the techniques of problem solving and the skills of communication so as to prepare her to give positive and constructive nursing care to the psychiatric patient. Clinical experiences with individual patients and with groups of patients as well as classroom discussion of theoretical concepts of psychiatric nursing and psychiatry are provided.

Fernandez and Assistants.

Nurs. 153. Public Health (2)—First and second semester, Senior Year.

Development of Public Health as a science. Philosophy, principles, objectives, and methods of public health. Public Health laws. Analyses of problems and practices in public health.

Williams and Warthen.

Nurs. 154. Principles of Management in a Nursing Unit (2)—Second semester, Senior Year,

This course considers the elementary principles of administration; and the interrelationships of the various departments of a health agency. It deals with the position of the supervisor, staff nurse and other members of the nursing team. Methods of supervision and evaluation of clinical work are included.

Gipe and Assistants.

Nurs. 155. Survey of Professional Nursing (2)—Second semester, Senior Year.

Designed to assist the student to acquire a knowledge of those social and economic trends which influence professional nursing, World Health Organization, nursing organizations, national and international, are included.

Conley.

Nurs. 156. Public Health Nursing I (2)—First and Second semester, Senior Year.

Development and trends of public health nursing, principles and objectives and methods of public health nursing.

Wohlsen and Assistants.

Nurs. 157. Public Health Nursing II (4)—First and Second Semester, Senior Year.

Designed to assist students in the application of knowledge and skills in caring for patients and their families in the community. Thirteen weeks clinical experience is offered through the facilities of the city and state health departments. Eight weeks clinical experience offered to graduate nurse students.

Wohlsen and Assistants.

Nur. 158. Bio-statistics (3)—First semester, Senior Year.

Purpose is to orient the student in the proper interpretation of observational data, and to evaluate quantitative aspects of medical literature.

Tayback.

Nurs. 159—Clinical Practicum (2)

Course provides opportunity for the graduate professional nurse to apply her knowledge, understanding and skills to nursing problems. Registration upon the advice of the advisor.

Nur. 199. Pro-seminar (2).

Integration of scope and trends in nursing as compared with theoretical and practical applications. (For graduate nurse students).

Nutrition 110. Nutrition (3)—Second Semester, Sophomore Year.

A scientific study of principles of human nutrition, animal experimentation. Corrections of nutritional deficiencies by dietary studies.

Braucher

Nutrition 114—Nutrition for Health Service (3)

A scientific study of nutritional status and the effect of food habits on family health. Nutritional requirements for individuals in different stages of development. Techniques and procedures for the application of nutrition knowledge with consideration of various economic levels and social backgrounds (For graduate nurse students).

Braucher.

P. E. 6, 8. Selected Sports and Dance (1, 1)—Three hours a week, first and second semesters, Sophomore year.

Sophomores may elect from the following: archery, badminton, basketball, bowling, fencing, folk and square dancing, golf, hockey, rifle, softball, speedball, tennis and volleyball.

P. E. 160. Scientific Aspects of Movement (3)—Second semester, Junior Year.

An application of selected aspects of physical and biological sciences to fatigue, relaxation, uses of exercise; the corrective therapy aspect of physical and mental rehabilitation; sports for the handicapped; and prevention and care of athletic injuries. Wessel.

Psych. 1. Introduction to Psychology (3)—First and second semesters.

A basic introductory course intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution. Heintz and Staff

Soc. 1. Sociology of American Life (3)—First semester, Freshman year.

Sociological analysis of the American social structure; metropolitan, small town, and rural communities; population distribution, composition, and change; social organization. Hoffsommer and Staff

Soc. 64. Courtship and Marriage (3)—Second semester, Junior Year, Prerequisite, Soc. 1 and sophomore standing.

A socialized study of courtship and marriage including consideration of physiological and psychological factors. Inter-cultural comparisons and practical considerations. Shankweiler.

Speech 18, 19. Introductory Speech, (1, 1)—First and second semesters, Freshman year.

This course is designed to give students practice in public speaking. Speech 18 is prerequisite for Speech 19. Laboratory fee \$1.00 for each semester. Strausbaugh and Staff

Speech 10. Group Discussion (2)—First and second semesters.

A study of the principles, methods, and types of discussion, and their application in the discussion of contemporary problems. Hendricks and Staff.)

Speech 103. Speech Composition and Rhetoric (3).

A study of rhetorical principles and models of speech composition in conjunction with the preparation and presentation of specific forms of public address. For Graduate Nurse Students.

Zool. 1. General Zoology (4)—First and second semesters. Two lectures and two 2-hour laboratory periods per week. Zoology 1 and Zoology 2 satisfy the freshman pre-medical and nursing requirements in General Biology.

This course, which is cultural and practical in its aim, deals with the basic principles of animal life. Laboratory fee \$8.00. Wharton

Zool. 2. Advanced General Zoology (4)—Second semester. Two lectures and two 2-hour laboratory periods a week. Prerequisite, Zoology 1 or Zoology 16.

A study of the anatomy, classification and life histories of representative animals, invertebrates and vertebrates. Laboratory fee \$8.00. Littleford

Zool. 14, 15. Human Anatomy and Physiology (4, 4)—First and second semesters, Sophomore year. Two lectures and two laboratory periods a week. Prerequisite, one course in zoology. Zoology 14 is a prerequisite for Zoology 15.

For students who desire a general knowledge of human anatomy and physiology. Laboratory fee \$8.00 each semester. Phillips and Staff

GRADUATE COURSES

Nurs. 201. Trends of Higher Education in Nursing (2)—First Semester.
One lecture or two hour conferences a week. Gipe and Staff.

Nurs. 202. Interpersonal Interaction (2)—First Semester.
One lecture and one two hour laboratory period a week.
Fernandez, Psychiatric Institute Staff.

Nurs. 203. Nursing in the Somatic Therapies (2)—First Semester.
One lecture and one two-hour laboratory period a week. Carl, Grenell.

Nurs. 204—Psychiatric Nursing (2)—First Semester.
One lecture and one three-hour laboratory period a week.
Fernandez and Assistants.

Nurs. 205. Psychiatric Nursing (2)—Second Semester.
One lecture or conference and one four-hour laboratory period a week.
Fernandez and Assistants.

Nurs. 206. Philosophical Concepts of Health (2)—Second Semester.
Two hour lecture a week.

Nurs. 207. Nursing in Child Health Services (2)—First Semester.
One lecture and two three-hour laboratory periods a week.

Nurs. 208. Nursing in Child Health Services (2)—Second Semester.
One lecture and two four-hour laboratory periods a week.

Nurs. 209. Nursing in Maternal and Newborn Services (2)—First Semester.
One lecture and two three-hour laboratory periods a week.

Nurs. 210. Nursing in Maternal and Newborn Services (2)—Second Semester.

One lecture and two four-hour laboratory periods a week.

Nurs. 211. Seminar in Maternal and Child Health Services (2)—Second Semester.

One two-hour period a week.

Nurs. Ed. 286. Research Methods and Materials in Nursing Education (2)—First Semester.

One two-hour lecture or conference a week. Carl and Assistants.

Nurs. Ed. 287. Seminar in Problems in Nursing Education (2)—Second Semester.

One two-hour period a week. Carl and Assistants.

Nurs. 289. Research - Thesis (1-6).

RECORDS AND STATISTICS

Degrees Conferred 1955-56

HONORARY DEGREES

Doctor of Science

GEORGE McCULLOUGH ANDERSON

Doctor of Laws

JOHN WILLIAM GARDNER

Doctor of Science

KARL FERDINAND HERZFELD

Doctor of Engineering

EDMUND COOPER MAYO

Doctor of Military Science

WILLIAM H. TUNNER

HONORARY CERTIFICATES OF MERIT IN AGRICULTURE

JAMES McSHERRY SHRIVER

HERMAN LAMONT STOCKSLAGER

JAMES McKENNY WILLIS, Jr.

GRADUATE SCHOOL

Doctor of Philosophy

Richard Emery Brown....	New Jersey	William Arthur Klein.....	Minnesota
Gordon Henry Bryan.....	Montana	Charles Joseph Kokoski....	Maryland
Harold Horn Bryant.....	Maryland	Aaron Kornetsky	Massachusetts
William Joseph Campbell.....	D. C.	Ann White Kurtz.....	Maryland
Ching Chieh Chang.....	Maryland	William Burrows Lawson...	Michigan
Paul Arthur Crafton.....	D. C.	Olin S. Lutes.....	D. C.
Jack Richard Dixon.....	Maryland	Edward Lawrence McCaffery,	
Roger Otto Drummond....	Maryland		Pennsylvania
Andrew Adrian Duncan....	Maryland	James Roland Miller.....	Maryland
Richard Egan	Maryland	Leonard Lenard Mitnick.	Pennsylvania
Homer Rudolph Figler.....	Maryland	William Lamon Monson....	Delaware
Herman Fleischacker ...	Pennsylvania	John Francis Muldoon..	Pennsylvania
Archer Hammer Futch, Jr....	N. C.	Hillyer Gavin Norment, Jr.....	D. C.
Alva Morgan Golden.....	California	Philip John Pare.....	Maryland
Meyer Greenberg	Maryland	Robert Wayman Rector....	Maryland
Donald Greenspan	New York	Max Schreiner, Jr.....	New Jersey
William Lawrence Haberman,		Harry Edward Seidel, Jr....	Maryland
	Maryland	George Louis Steffens.....	Maryland
Chi-Kang Hsu	Washington	Henry Edgar Swann, Jr....	Maryland
Donald Richard Jacobson...	Maryland	Willard Stanley Vaughan, Jr.,	
Jonah Jaffee	Maryland		Pennsylvania
Warren Thurston Johnson..	Maryland	Glenn Dayton Warrick.....	California
Mahmoud Abdou Kheireldin....	Egypt	Marvin Stanley Weinstein...	Maryland
Wilson W. Kimbrough, Jr.,		Robert James Weir, Jr.....	Maryland
	Pennsylvania	Donald F. Wetherell.....	Maryland

SUMMARY OF STUDENT ENROLLMENT

For the Academic Year, 1955-56, as of July 1, 1956

Resident Collegiate Enrollment

	*College Park	Baltimore	Total, Less Duplications
College of Agriculture	569	....	569
College of Arts and Sciences.....	2,484	....	2,484
College of Business and Public Administration	1,789	....	1,789
School of Dentistry.....	....	423	423
College of Education.....	1,205	....	1,205
College of Engineering.....	1,524	....	1,524
Graduate School	2,482	542	2,990
College of Home Economics.....	480	....	480
School of Law.....	....	433	433
School of Medicine.....	....	395	395
College of Military Science.....	212	....	212
School of Nursing	138	203	337
School of Pharmacy.....	....	255	255
College of Physical Education, Recreation, and Health.....	276	....	276
College of Special and Continuation Studies	4,083	1,688	5,749
Total.....	15,242	3,939	19,121
Duplications, Baltimore Intercollege.....	....	22	22
Duplications, College Park and Baltimore .....	....	....	40
Net Total	15,242,	3,917	19,059
Summer School, 1955.....	3,669	464	4,122
Duplications, Summer and Academic Year	2,309	222	2,531
Duplications, Summer School, Baltimore and College Park .....	....	....	173
Total, Resident Collegiate Enrollment	16,602	4,159	20,477
Foreign Collegiate Enrollment:			
European Command Program			17,450
North Atlantic Program			958
Total, Foreign Collegiate Enrollment.....			18,408
Grand Total, Collegiate Enrollment.....			38,885
Fire Service Extension			2,000

*Classified as of first 1955-56 registration.

SHORT COURSES AND CONFERENCES

Acarology Institute	28
Aggregates, Concrete & Bituminous Mixtures Annual Short Course	127
Agricultural Chemical Conference.....	170
American Seed Trade Association.....	450
American Society of Agronomy.....	350
Aviation Education Workshop.....	100
Baltimore Area Council Boy Scouts.....	250
Band Festival	3,600
Beef Cattle Conference on Record of Performance.....	15
Beef Cattle Field Day.....	100
Business and Industry Training Conference.....	29
Business Management Institute.....	51
China Annual Institute	106
Choral Festival	3,400
Correctional Administration Institute.....	137
Cosmetology Institute	75
Dairy Herd Improvement Association Short Course.....	18
Dairy Technology Conference	200
Farm Field Seed Industry Research Conference.....	300
Firemen's Short Course	864
Florists' Day	96
Food Processors' Workshop	49
Fruit Growers Conference	259
Future Farmers of America	250
Geography Section of Maryland State Teachers Association.....	50
Grange Leaders' Conference	148
Guidance Annual Conference	239
Hospital Management Institute.....	100
Hybrid Seed Corn Growers Meeting.....	20
Ice Cream Conference	75
Ice Cream Short Course	13
Juvenile Delinquency Governor's Conference.....	475
Law Enforcement Institute	108
Management Problems of the Small Business Firm Institute.....	28
Maryland Civil Defense Staff College.....	49
Maryland Crop Improvement Association.....	300
Maryland Education Conference	234
Maryland Nurserymen's Association	100
Mathematics Section of Maryland State Teachers Association.....	45
Mid-Atlantic Association of Golf Course Superintendents.....	107
Milk Tank Truck Drivers' Course	20
Motor Fleet Supervisors Annual Training Course.....	73
Nurserymen's Short Course	102
Nursing Home Administration Institute.....	67
Nutrition Conference for Feed Manufacturers.....	469
Orchestra and Ensemble Festival.....	600
Parent-Teacher Association Summer Conference.....	344

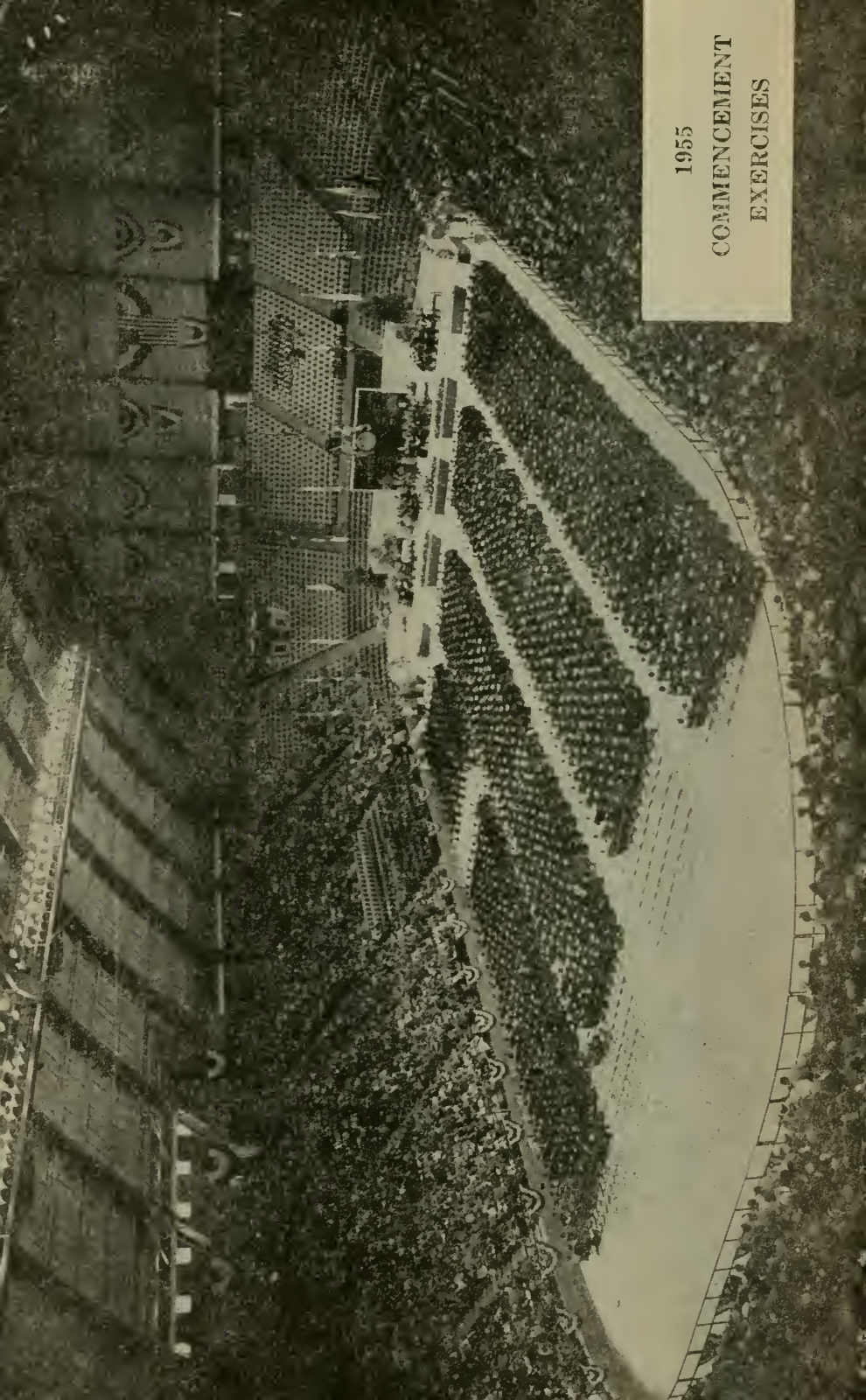
Phi Alpha Theta Regional History Conference.....	93
Quantum Interactions of the Free Electron International Conference	185
Regional Advanced Highway Training Program.....	35
Retail Seed Dealers Meeting.....	15
Rural Electrification Day	26
Rural Women's Short Course	976
Seed Certification Meeting	11
Seed Dealers Meeting	25
Sheep Field Day	95
Soybean and Small Grain Growers Meeting.....	96
Stockman's Short Course.....	88
Swimming Pool Operators and Managers Short Course.....	168
Tax Conference	107
Tobacco Field Day	550
Tobacco Stripping and Grading Demonstrations.....	1,162
Traveler's Protective Association Tour Group.....	500
Turf Grass Growers Meeting.....	17
Water and Sewage Plant Operators Short Course.....	81
Wholesale Seed Dealers Conference	6
Youth in Politics Conference	200

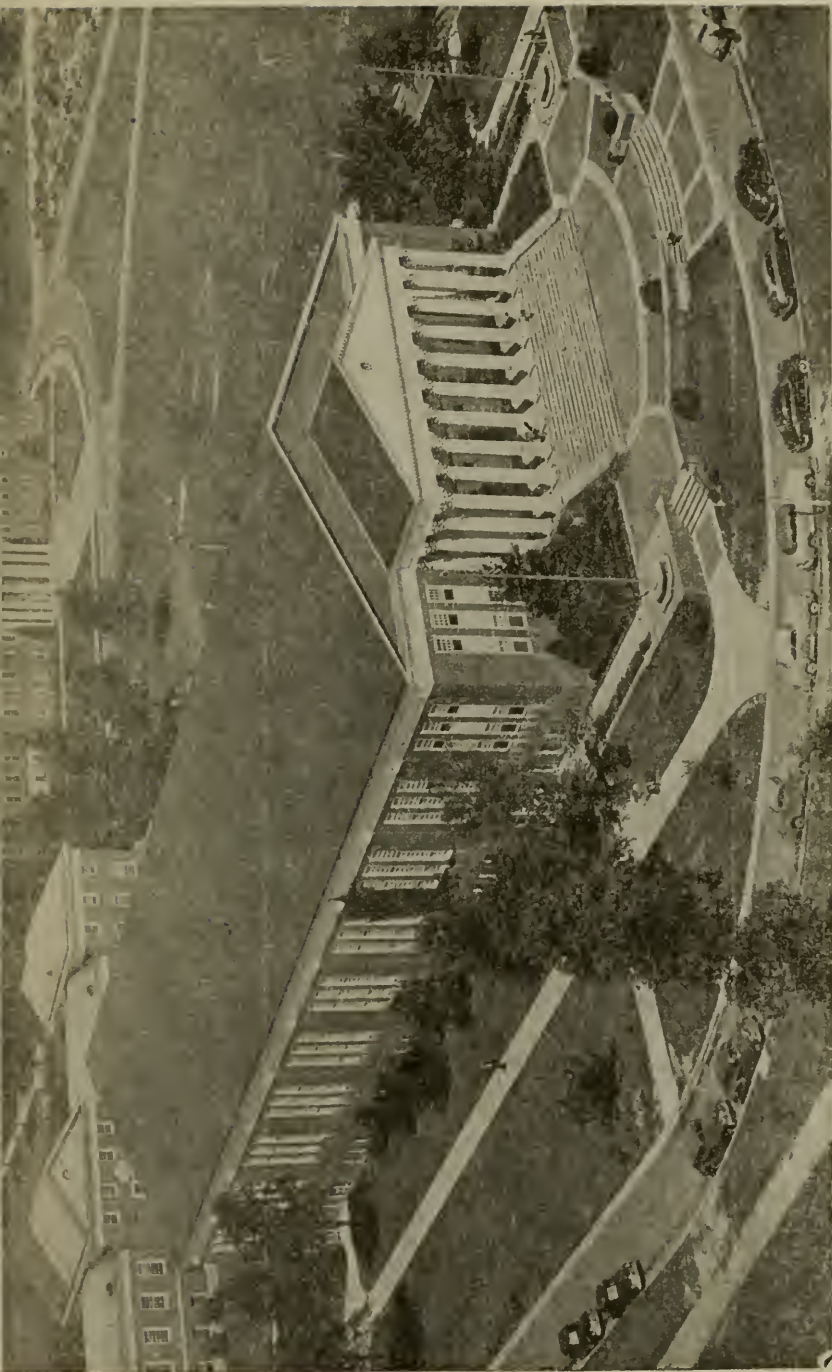
Total, Short Courses and Conferences.....19,226

**Grand Total, All Registrations, College Park, Baltimore, and
Overseas, less duplications** 60,111

1955

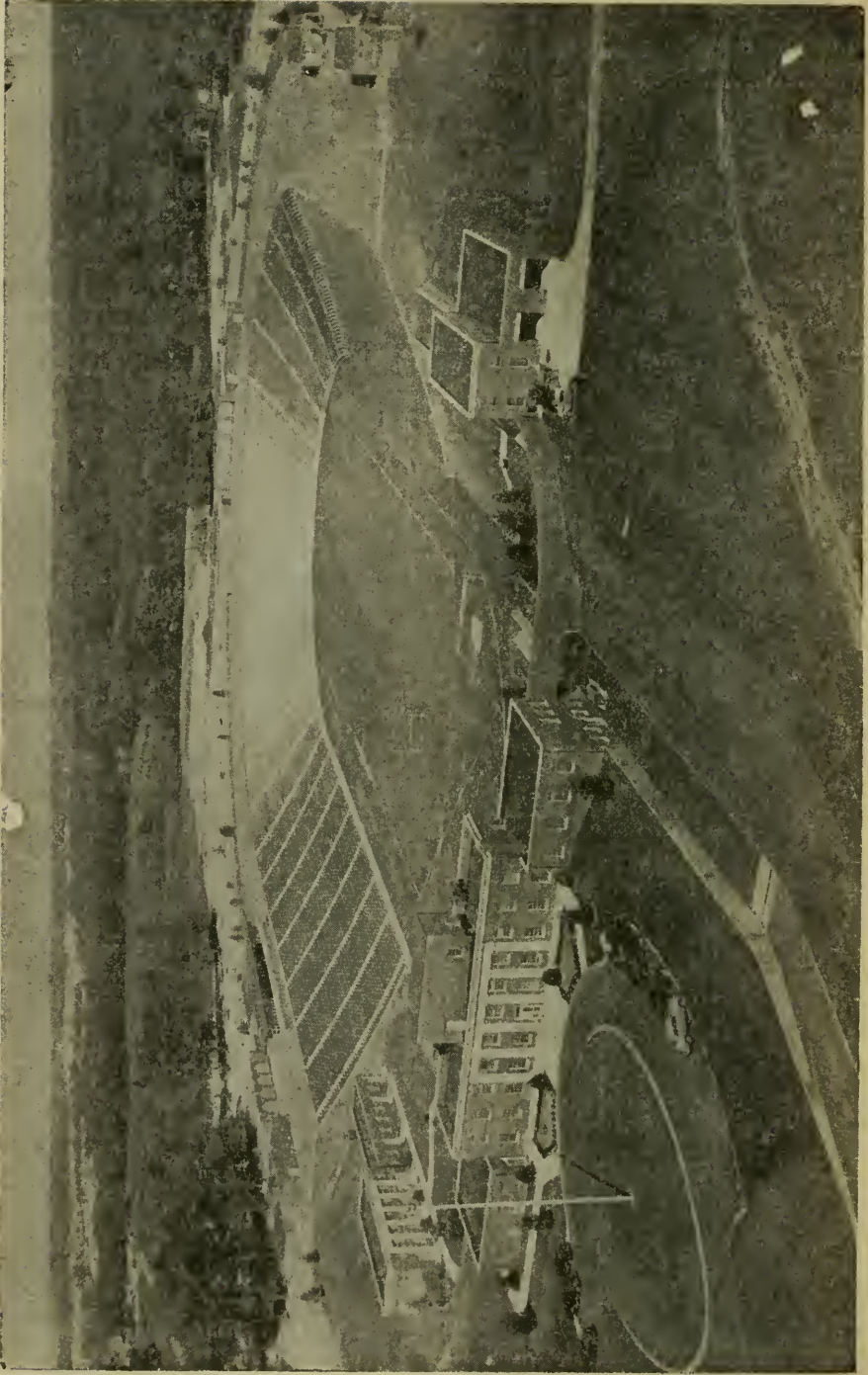
COMMENCEMENT
EXERCISES





MARYLAND'S SPACIOUS ARMORY

Headquarters of one of the country's largest Air Force ROTC and the University's College of Military Science, 3,600 men may form on the Armory floor where four basketball games may take place simultaneously. The Armory also houses one of the country's finest rifle ranges, home of Maryland's rifle team, repeated winners of national championships.



Byrd Stadium

EDUCATION

"**E**DUCATION does not mean teaching people what they do not know. It means teaching them to behave as they do not behave. It is not teaching the youth the shapes of the letters and the tricks of numbers, and then leaving them to turn their arithmetic to roguery and their literature to lust. It means, on the contrary, training them into the perfect exercise and kingly continence of their bodies and souls. It is a painful, continual and difficult work to be done by kindness, by watching, by warning, by precedent, and by praise, but above all—by example."—John Ruskin.

"In our country no man is worthy the honored name of statesman, who does not include the highest practicable education of the people in all his plans of administration."—Horace Mann.

"Promote, then, as an object of primary importance institutions for the general diffusion of knowledge. In proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened."—George Washington.

"The good education of youth has been esteemed by wise men in all ages as the surest foundation of the happiness both of private families and of commonwealths."—Benjamin Franklin.

"The whole people must take upon themselves the education of the whole people and be willing to bear the expense of it."—John Adams.

"If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be."—Thomas Jefferson.

"A popular government without popular information or the means of acquiring it, is but the prologue to a farce or a tragedy, or perhaps both."

—James Madison

"An educated man is never poor and no gift is more precious than education."—Abraham Lincoln.

"Without popular education no government which rests on popular action can long endure; the people must be schooled in the knowledge and in the virtues upon which the maintenance and success of free institutions depend."

—Woodrow Wilson

"We have faith in education as the foundation of democratic government."

—Franklin D. Roosevelt



SEPARATE CATALOGS

At College Park

Individual catalogs of colleges and schools of the University of Maryland at College Park may be obtained by addressing the Director of Information, University of Maryland, College Park, Maryland.

These catalogs and schools are:

1. General Information
2. College of Agriculture
3. College of Arts and Sciences
4. College of Business and Public Administration
5. College of Education
6. College of Engineering
7. College of Home Economics
8. College of Military Science
9. College of Physical Education, Recreation and Health
10. College of Special and Continuation Studies
11. Summer School
12. Graduate School

At Baltimore

Individual catalogs for the professional schools of the University of Maryland may be obtained by addressing the Deans of the respective schools at the University of Maryland, Lombard and Greene Streets, Baltimore 1, Maryland. The professional schools are:

13. School of Dentistry
14. School of Law
15. School of Medicine
16. School of Pharmacy
17. School of Nursing

At Heidelberg

The catalog of the European Program may be obtained by addressing the Dean, College of Special and Continuation Studies, College Park, Maryland.